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September 18, 1995

Ms. Patricia Hick, Esq.
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, New York 10007-1866

RECEIVED

SEP 22 1995

Re: Diamond Alkali Superfund Site;
Passaic River Study Area

Dear Ms. Hick:

As stated in my July 26 letter to you, I am writing in response to EPA's July 17 letter to Brian Kelly of Chris-Craft Industries, Inc. ("Chris-Craft"), which was signed by Mr. John Frisco for Ms. Kathleen Callahan, and who have asked that correspondence from Chris-Craft's attorneys be directed to you.

INTRODUCTION

In a September 7, 1994 letter, EPA notified Chris-Craft of its potential liability relating to the Passaic River Study Area, and also requested that it join Maxus Energy Corp. ("Maxus"), successor-in-interest to Diamond Alkali Corp. ("Diamond Alkali"), in performing a remedial investigation/feasibility study (RI/FS). EPA's July 17 letter notes there have been communications between EPA and Chris-Craft since September 1994, and then states that "EPA assumes that Chris-Craft declines to participate voluntarily in the ongoing response action."

For the reasons explained below, this assumption is premature and hence inappropriate. Chris-Craft wants to cooperate with EPA's handling of this matter; however,

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the communications to date between EPA and Chris-Craft have not provided Chris-Craft with the information necessary to evaluate meaningfully whether to assist with the RI/FS.

Indeed, EPA has not yet identified the specific basis for its conclusion that Chris-Craft is a PRP: at times, EPA has appeared to allege that there were direct discharges of hazardous substances from the Property via a pipeline or sanitary sewer line to the river, while at other times EPA has appeared to allege merely that there were storm water flows across the Property, which (as is the case with virtually all properties in the vicinity) displays certain levels of contaminants. In this same vein, Lance Richman told us when we met in April that he did not possess certain important information in this matter and is continuing his investigation. Moreover, EPA has not informed us of its actual intentions regarding the naming of other PRPs, although it has said generally that it plans to name at least some. Obviously, before deciding whether to participate in the RI/FS, Chris-Craft needs to know whether it is viewed as one of only two PRPs, or rather as one of 200 (or as one of some other number).

Stated another way, if the Passaic River Study Area was being managed like other typical multi-party Superfund sites, Chris-Craft likely would be able to respond to the request that it participate in the RI/FS. At other sites, EPA simultaneously identifies a group of PRPs that it views as having relatively the same degree of responsibility. These PRPs then are in a position to form committees and to negotiate among themselves and with EPA. This process has not occurred here, however. Rather, EPA has entered into an administrative consent order with one PRP (Maxus) to perform the RI/FS, has designated a second PRP (Chris-Craft), and now says it is in the process of identifying additional PRPs. Moreover, EPA has not provided any information about its perception of the relative responsibility of these PRPs and prospective PRPs. In these circumstances, it should come as no surprise that Chris-Craft is not yet able to determine whether to participate in the RI/FS.

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Chris-Craft is not attempting to delay responding to EPA's request and is not being unreasonable in seeking basic information from the agency. Chris-Craft has taken the initiative of opening a dialog with EPA and, as suggested by EPA, of conducting its own investigation. Chris-Craft hopes, with EPA's cooperation, to continue this dialog and investigation so that it can be in a position to respond fairly to EPA's request. Chris-Craft anticipates being in a position to do so after EPA explains (1) its overall approach to identifying potentially responsibility parties (PRPs), and (2) where EPA sees Chris-Craft as fitting into the general scheme.

In the following discussion I will explain how Chris-Craft's position has been arrived at. Some detail, particularly with respect to describing the communications between EPA and Chris-Craft, is appropriate because we want EPA to appreciate why Chris-Craft continues to have fundamental questions about this matter.

After you review this letter, Brian Kelly of Chris-Craft and I would like to discuss this matter with you and members of EPA management, and ask that you call me to arrange a meeting or telephone conference.

DISCUSSION

A. Factual Background

1. The 100 Lister Avenue Property

The 100 Lister Avenue, Newark, New Jersey property (the "Property") formerly was owned by Chris-Craft and its corporate predecessors, Montrose Chemical Co. ("Montrose-New Jersey") and Baldwin-Montrose Chemical Co. ("Baldwin-Montrose"). Montrose-New Jersey was incorporated in approximately 1946; in 1961, it merged into what became Baldwin-Montrose; in 1968, Baldwin-Montrose merged with Chris-Craft. Predecessors of Montrose-New Jersey apparently purchased part of the Property sometime before 1946, and the remainder thereafter. In 1972, more than twenty years ago, Chris-Craft sold the Property in an asset sale to Sobin Chemical Co. Accordingly, there are

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no current Chris-Craft officers or employees with personal knowledge of the activities that took place at the Property.

2. EPA's Investigations

Chris-Craft first learned in early 1993 that EPA was investigating the possibility that it might be a PRP relative to the Passaic River Study Area¹, when it received EPA's CERCLA section 104(e) information request dated December 30, 1992. The first sentence of this request stated:

The United States Environmental Protection Agency ("EPA") is investigating the production and disposal of wastes containing 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), a hazardous substance.

The request primarily sought information about whether 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) and its chemical precursor, 2,4,5-trichlorophenol (2,4,5-TCP), were manufactured at the Property. EPA has said that 2,3,7,8-TCDD is a byproduct of the manufacture of 2,4,5-T.

Chris-Craft investigated the questions raised by EPA's information request and, in a written response dated January 25, 1993, stated that to its knowledge neither 2,4,5-TCP nor 2,4,5-T were manufactured at the Property. Additionally, Chris-Craft located no documents suggesting that such manufacture occurred. Chris-Craft's response

¹ The Passaic River Study Area is an adjunct to the Diamond Alkali Superfund Site, which is located approximately one-quarter to one-half mile from the Property. Diamond Alkali formerly manufactured the pesticide 2,4,5-trichlorophenoxyacetic acid at the Diamond Alkali Superfund Site. We understand there is no dispute that wastes from Diamond Alkali's manufacturing process were discharged to the Passaic River. Maxus has agreed with EPA to conduct an RI/FS, estimated to cost approximately \$10 million. EPA never contacted Chris-Craft about participating in the RI/FS until after EPA and Maxus had finalized their agreement.

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also stated that it was unaware of any drain lines or sewers running from the Property to the Passaic River. As you are aware, the Property is not adjacent to the river, but is separated from it by other parcels.

In November 1993, Chris-Craft received a second information request. This request again stated that EPA was investigating the presence of 2,3,7,8-TCDD in Passaic River sediments and inquired about manufacture of 2,4,5-T at the Property. It also asked about manufacture of certain other commercial chemicals, including DDT, Lindane, benzene hexachloride and trichlorobenzene. Chris-Craft's January 1994 written response to EPA's second information request stated that based on Chris-Craft's investigation, it understood that DDT, Lindane and benzene hexachloride had been manufactured briefly at the Property, but that 2,4,5-T and trichlorobenzene had not been.

In December 1993, in light of EPA having directed two information requests to Chris-Craft, we in turn sent a Freedom of Information Act (FOIA) request to EPA asking that it provide, among other things, any information it contended linked Chris-Craft to contamination in the Passaic River sediments. No response to Chris-Craft's FOIA request was provided for more than ten months.

On September 7, 1994, although EPA had not yet responded to Chris-Craft's FOIA request, it sent the above-described PRP letter. By letter of September 21, 1994, we said that Chris-Craft wanted to cooperate with EPA but would not be in a position to consider participating in the RI/FS until EPA responded both to certain basic questions Chris-Craft had about the September 7 letter and also to Chris-Craft's December 1993 FOIA request.

On November 1, 1994, EPA responded to the FOIA request. The response enclosed approximately three inches of documents, including certain statements given by five former employees at the plant. One former employee, who currently works for a consultant to Maxus, said that 2,4,5-T was manufactured at the Property for approximately six months in about 1950. Another former employee claimed there was a drain line from the Property to the river,

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into which manufacturing wastewaters were discharged. This was the first time that Chris-Craft had been made aware of these allegations. The FOIA response also included a letter from Steve Huntley of ChemRisk, another consultant for Maxus, stating his opinion that the production of the following materials at the Property likely would have resulted in the formation of 2,3,7,8-TCDD as a byproduct: 2,4,5-T, 2,4-dichlorophenoxyacetic acid (2-4-D) and tricresyl phosphate ("TCP").

3. Chris-Craft's Investigation

Based on the information in the FOIA response, Chris-Craft began conducting further investigation into (1) whether 2,4,5-T had been manufactured at the Property; (2) whether 2,3,7,8-TCDD was a byproduct of the manufacture of the substances identified by Mr. Huntley; and (3) whether there is a possibility that significant amounts of wastes from the Property were discharged to the river. To this end, between December 1994 and February 1995, Chris-Craft undertook the following steps:

i) Working with a consultant, we located annual reports prepared by the U.S. Tariff Commission in the 1940s-60s, which identify the manufacturers of various organic chemicals. The information in the reports is a compilation of information provided by private chemical manufacturers like Montrose-New Jersey. These reports reflect that Montrose-New Jersey and its successors reported to the government that they produced DDT, Lindane, benzene hexachloride and TCP, among other substances, but not 2,4,5-T.

ii) We also obtained pages from historical issues of a trade journal, the Oil, Paint and Drug Reporter, containing advertisements placed by the sales agent for Montrose-New Jersey and its successors, R.W. Greef & Co. The chemicals referred to in these advertisements include DDT, Lindane, benzene hexachloride and TCP, but not 2,4,5-T.

iii) We additionally obtained certain historical documents from ChemWaste Management, the current les-

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see of the Property. These documents include site diagrams that we have forwarded to you.

Based on the foregoing, we sent a letter to EPA dated February 13, 1995, explaining Chris-Craft's belief that: (1) based on historical site diagrams provided by ChemWaste Management, there is no basis to believe there were any pipelines or sanitary sewer connections from the 100 Lister Avenue plant to the river; (2) based on our chemical engineering consultant's evaluation, 2,4-D and TCP, two of the three substances mentioned by Mr. Huntley, are not 2,3,7,8-TCDD precursors; and (3) based on, among other things, the absence of any suggestion to the contrary in the U.S. Tariff Commission reports, there is no evidence of 2,4,5-T manufacture at the Property.² Our letter requested a meeting with you and Lance Richman, and we subsequently met in New York on April 25.

4. The April 25 Meeting

The meeting included discussion of the following matters.

- a. Alleged "possible" connections between 100 Lister Avenue and the Passaic River

Mr. Richman said he believed there may have been a pipeline from the Property to the river because of a 1930 deed that referenced a petroleum pipeline, but said

² In our meeting with Lance Richman and you on April 25, 1995, you provided for the first time a page from a 1950s trade publication, an annual "Buyer's Guide" issue of Chemical Week, which included Montrose-New Jersey in a listing of 2,4,5-T manufacturers. We are informed that this listing reflected Montrose-New Jersey having promoted itself as capable of manufacturing a product in the hope of generating sales. The absence of any reference in the U.S. Tariff Commission annual reports to Montrose-New Jersey as a 2,4,5-T producer, however, demonstrates that these promotional efforts were not successful.

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that EPA has not conducted any field investigation into whether such a pipe ever existed. We are unaware of any physical evidence supporting the actual existence of such a pipeline. Accordingly, if EPA is assuming that a pipeline existed, this assumption rests solely upon conjecture.

Also, Mr. Richman stated his belief that sanitary sewage flows from the Property may on occasion have discharged to the river. In this regard, he said there was a combined sanitary and storm sewer running beneath Lister Avenue in the vicinity of the Property (as you know, Lister Avenue is to the south of the Property, while the Passaic River is to the north of the Property and separated from it by separate parcels owned by third parties). Mr. Richman said that discharges through this sewer generally flowed to one or more publicly owned treatment works (POTWs), but that he did not know where the POTWs were located or in which direction the purported combined sanitary/storm sewer ran; he told us to research these subjects if we were interested in them.³ However, again according to Mr. Richman, there were storm outlets at the Passaic River and sanitary discharges could have reached the river during storm events or if the storm outlets were "jammed" open. Mr. Richman said he was not aware of any actual evidence of either of these situations occurring, but that his experience from other sewer systems led him to believe that they could have. Again, Mr. Richman's belief is not grounded on actual evidence, but on assumptions and speculation.

Finally, Mr. Richman also said that storm runoff from the Property to the river could have contributed to contamination. In this regard, Mr. Richman was careful to say -- inconsistently with EPA's initial statement about the nature of its investigation in the Passaic River

³ As discussed below, we have conducted such research, and our investigation leads us to question Mr. Richman's assumptions that there was a combined sanitary and storm sewer and that sanitary sewer flows ever discharged to the river.

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Study Area -- that EPA's investigation of the alleged contaminants in the study area includes other hazardous substances in addition to 2,3,7,8-TCDD. To the extent that EPA's claim that Chris-Craft is a PRP is grounded on the possibility of surficial runoff of hazardous substances from the Property to the river, we presume that EPA similarly is in a position to name as a PRP virtually every other current or former owner or operator of industrial property in the river's drainage area.

b. Analysis of whether substances produced at 100 Lister were 2,3,7,8-TCDD precursors

Although Mr. Richman said that dioxins are no longer the only substances being investigated in the river sediments, he also said that EPA has a consultant (who he would not identify, even though we had brought Chris-Craft's consultant to the meeting) who is looking at the question of whether the substances Montrose-New Jersey produced are 2,3,7,8-TCDD precursors. You said this consultant's analysis is ongoing and that he or she perhaps will reach preliminary conclusions by the end of this year.

c. Direction of EPA's investigation

When we asked Mr. Richman and you about whether EPA is investigating other parties as having contributed to alleged contamination in the Passaic River Study Area, you said EPA is continuing to send out CERCLA section 104(e) information requests and likely will identify additional PRPs. More specifically, you said you contemplate that EPA likely will name additional PRPs by the end of the year. Although you would not estimate how many additional PRPs will be named, you did confirm my supposition that there are many "players."

On a related subject, Mr. Richman and you said EPA has not analyzed the magnitude of discharges, if any, from the Property to the river. You likewise said EPA has not evaluated the relative contributions of discharges, if

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any, from the Property vis-a-vis discharges from other properties.

5. EPA's June 14 FOIA Response

Mr. Richman's and your statements at the April 25 meeting suggested that EPA had conducted at least some further investigation after Chris-Craft's December 1993 FOIA request, both of the Passaic River Study Area matter generally, and also of Chris-Craft's alleged involvement in particular. Accordingly we directed another FOIA request to EPA, to which Mr. Richman responded on June 14, 1995.

Mr. Richman's June 14 letter encloses a June 1, 1995 memo prepared by Kroll Environmental Services ("Kroll"), an EPA contractor. The Kroll memo in turn refers to a series of additional documents, including (1) two reports -- "Remedial Investigation Report" (December 1993) and "Supplemental Remedial Investigation Work Plan" (September 1994) -- describing conditions at the Property; and (2) three letters from a former lessee of the property, SCA Chemical Services Co. ("SCA"), to the New Jersey Department of Environmental Protection, dated August 28, 1983, December 1, 1983 and February 1, 1984. Another similar letter, dated October 20, 1983, from SCA to EPA, is included as an attachment to the Remedial Investigation Report.

We note that even if the Kroll memo is factually accurate in describing the levels of pesticides detected at the Property (the memo clearly is not accurate in certain other respects), many of these levels do not pose any significant environmental threat. For example, the highest detected level of 2,4,5-T, 0.16 ppm, is several orders of magnitude less than the reported New Jersey cleanup standard of 1,000 ppm. Furthermore, the detected level of 2,4,5-T also is orders of magnitude less than the detected levels of the pesticides that Montrose-New Jersey has acknowledged making at the plant. This disparity between the detected levels of 2,4,5-T on the one hand and of the other pesticides on the other is further evidence that Montrose-New Jersey did not manufacture 2,4,5-T. Rather,

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the trace levels of 2,4,5-T at the Property are consistent with the substance having been transported to the Property from other source areas.

Moreover, the historical correspondence from 1983 and 1984 attached to the Kroll memo describes testing for dioxins done then at the Property. The results of this testing were essentially uniform -- there was no dioxin found at most locations tested, and mere traces at a few others. These results again are consistent with transport from other source areas.

B. Chris-Craft's Remaining Fundamental Questions
About This Matter

For Chris-Craft to be able to respond to EPA's request that it participate in the RI/FS, Chris-Craft needs to understand more precisely EPA's overall views about, and approach to, the Passaic River Study Area. To the extent that EPA now takes the position that the RI/FS has been necessitated by the presence of both dioxins and other contaminants in the river sediments, and that certain such other contaminants reached the river sediments as a result of surface run-off from the Property, then Chris-Craft presumably is one of several parties EPA intends to name as PRPs.⁴ Chris-Craft is entitled to know who these other parties are, and to be provided with EPA's perception of the relative contributions of the respective PRPs to the sediment contamination. As you are aware from your Superfund experience, for discussions among PRPs at any multi-party site to prove fruitful, it is essential that the PRPs possess information about EPA's assessment of their relative responsibility.

⁴ Chris-Craft's investigation as to the quantity of hazardous substances, if any, released from its Property to the river is ongoing. Chris-Craft reserves its rights to assert that there were no such discharges, or that to the extent any such discharges occurred they were de minimis or de micromis as compared to discharges from other sources or properties.

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Furthermore, to the extent that EPA contends either that there were discharges of 2,3,7,8-TCDD from the Property or that there were discharges from the Property to the river through a supposed pipeline or the local sewage system, Chris-Craft is entitled to be provided with EPA's informed views on these subjects. During the April 25 meeting, we were told that EPA still is investigating matters such as whether the products manufactured at the Property in fact were dioxin precursors. Also, it is apparent that several of EPA's beliefs underlying its conclusion that Chris-Craft is a PRP are based solely on assumptions, and not on actual evidence. It is incongruous for EPA to insist that Chris-Craft make a decision on whether to participate in the RI/FS before EPA has completed its basic investigation about the extent, if any, to which the Property has contributed to the alleged sediment contamination.

C. Additional Issues

Chris-Craft also wishes to follow up in certain respects on the discussions during the April 25 meeting. At Mr. Richman's suggestion, we have conducted research into the historical alignment of sewer lines beneath Lister Avenue. When we met in April, Mr. Richman expressed his belief that there was a combined sewer in the area of the Property. However, utility maps prepared as early as 1937 (copies are attachments A-C) show that there were separate sanitary and storm sewer lines beneath Lister Avenue, that the sanitary line ran east to west beneath Lister before branching to the south at Cornelia Street, and that this line was configured such that no sanitary sewage would have flowed into the river via the storm sewer line running beneath Brown Street. Accordingly, the available evidence suggests that Montrose-New Jersey's process flows were discharged to the sanitary sewage system, and did not flow into the Passaic River.

Furthermore, the documents forwarded by Mr. Richman on June 14 create questions about whether EPA has fully responded to Chris-Craft's FOIA requests. For example, the October 20, 1983 letter from SCA to EPA (copy enclosed as attachment D) clearly is responsive to Chris-

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Craft's December 1993 FOIA request, yet only was produced recently. We are concerned that EPA or Kroll may possess additional documents responsive to our FOIA requests that have not been shared with us.⁵ We ask that EPA determine whether it has provided us with all documents that either it or Kroll possess and that are responsive to Chris-Craft's FOIA requests. If not, they should be provided to us. We remain willing to reimburse the copying costs for these documents.⁶

CONCLUSION

In light of the current posture of this matter, Chris-Craft is not now able to make an informed decision about whether to contribute to the RI/FS. To the extent EPA contends that Chris-Craft is a PRP either because (1) 2,3,7,8-TCDD allegedly was discharged from the Property or (2) any hazardous substances were discharged from the Property to the river sediments via a pipeline or a sanitary sewer, then, before being called upon to contribute to the RI/FS, Chris-Craft should be provided both with the

⁵ EPA is obligated to turn over all FOIA-responsive documents obtained by Kroll. See Ryan v. Department of Justice, 617 F.2d 781, 785 (D.C.Cir. 1980) ("The straightforward question of who has physical possession of documents has not sufficed, in cases before this court, to define whether documents are agency records. A simple possession standard would permit agencies to insulate their activities from FOIA disclosure by farming out operations to outside contractors").

⁶ The June 1 Kroll memo also gives rise to certain additional questions. The memo states that "[t]he manufacture of 2,4,5-T at the site was corroborated by . . . documents recently provided to you." Have these documents been shared with us? The memo also states categorically that DDT was "manufactured by Montrose during the period 1943-1954." What evidence is there of manufacture after 1950? We are not aware that such manufacture occurred.

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conclusions of EPA's complete investigation and also with an opportunity to discuss these conclusions with EPA. To the extent that Chris-Craft is being called upon to contribute to the RI/FS because EPA contends that site runoff carried hazardous substances to the river, then Chris-Craft is entitled to know what other parties EPA intends to designate as PRPs on this basis. Moreover, Chris-Craft is entitled in either event to EPA's views on the relative responsibility between and/or among the various PRPs in this matter.

* * *

Thank you for your attention to this matter. Again, Brian Kelly of Chris-Craft and I would like to speak with you and EPA management at your convenience. A telephone conference might be appropriate in the first instance. I will be in New York during the week of October 9 and Mr. Kelly and I could meet with you and EPA management then (ideally on either the 10th or 11th).

I look forward to hearing from you soon.

Very truly yours,


Peter Simshauser

Enc.
cc (w/enc.): Brian C. Kelly, Esq.

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Noted

UNITED STATES TARIFF COMMISSION
Washington



Preliminary

**SYNTHETIC ORGANIC CHEMICALS
UNITED STATES PRODUCTION
AND SALES OF**

MISCELLANEOUS CHEMICALS

1950

Compiled by the Chemical Division
United States Tariff Commission
August 1951

73-10

- 1) send out 104(e)s
- 2) prepare 104(e) for Stauffer
- 3) Rh

order 104 e's

W.R. Griffith → connections
Third Tier 'Gay

Stauffer →
↓
prepare 104(e)

FORGET out

Sit map & text

Gary Jewell FAX to
Shutob

Synthetic organic chemicals: United States production
and sales of miscellaneous chemicals, 1949--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value
	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>dollars</u>	<u>Per</u> <u>pound</u>
MISCELLANEOUS CHEMICALS, CYCLIC-- Continued				
Plant hormones, total-----	28,707	14,157	9,491	\$0.67
2,4-Dichlorophenoxyacetic acid (2,4-D) and derivatives, total-----	27,957	13,671	8,633	.63
2,4-Dichlorophenoxyacetic acid-----	15,106	6,593	4,174	.63
2,4-Dichlorophenoxyacetic acid, iso- propyl ester-----	7,106	3,288	1,934	.59
2,4-Dichlorophenoxyacetic acid esters, other-----	1,456	7/	7/	-
2,4-Dichlorophenoxyacetic acid, sodium salt-----	859	598	447	.75
2,4-Dichlorophenoxyacetic acid, triethanolamine salt-----	2,272	1,835	865	.47
2,4-Dichlorophenoxyacetic acid, salts, other-----	1,158	7/	7/	-
All other-----	-	1,357	1,213	.89
Naphthaleneacetic acid and derivatives-----	6	8	108	12.78
All other 8/-----	744	478	750	1.57
Rosin acid salts-----	4,962	5,161	692	.13
Tanning materials, synthetic 2/-----	17,774	15,946	2,390	.15
All other miscellaneous cyclic chemicals-----	65,879	65,471	18,786	.29
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total-----	11,408,227	5,022,018	642,983	.13
Acetic acid: Synthetic 10/-----	349,526	139,775	9,621	.07
Acetic acid salts, total-----	12,029	10,693	1,619	.15
Aluminum acetate-----	392	339	148	.44
Ammonium acetate-----	73	73	34	.46
Cobalt acetate-----	129	128	120	.94
Lead subacetate-----	93	87	34	.39
Potassium acetate-----	90	152	39	.26
Zinc acetate-----	146	156	38	.24
All other-----	11,106	9,758	1,206	.12
Acetic anhydride, from all sources-----	652,469	-	-	-

See footnotes at end of table.

Synthetic organic chemicals: United States production
and sales of miscellaneous chemicals, 1950--Continued

Chemical	Production	Sales		
		Quantity	Value	Unit value
	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>pounds</u>	<u>1,000</u> <u>dollars</u>	<u>Per</u> <u>pound</u>
MISCELLANEOUS CHEMICALS, CYCLIC-- Continued				
Plant hormones, total-----	28,120	17,484	9,235	\$0.53
2,4-Dichlorophenoxyacetic acid (2,4-D) and derivatives, total-----	25,784	16,578	7,966	.48
2,4-Dichlorophenoxyacetic acid-----	14,156	9,482	3,971	.42
2,4-Dichlorophenoxyacetic acid, iso- propyl ester-----	7,318	3,559	1,882	.53
2,4-Dichlorophenoxyacetic acid, esters, other-----	2,098	1,150	918	.80
2,4-Dichlorophenoxyacetic acid, salts-----	2,212	2,387	1,195	.50
2,4,5-Trichlorophenoxyacetic acid and esters-----	1,750	655	1,018	1.55
All other 7/-----	586	251	251	1.00
Research chemicals-----	13	-	-	-
Rosin acid salts, total 5/-----	5,785	5,630	729	.13
Calcium resinate-----	81	-	-	-
Cobalt resinate-----	46	44	16	.36
All other-----	5,658	5,586	713	.13
Tanning materials, total-----	23,320	20,960	3,558	.17
Naphthalenesulfonic acid condensates-----	19,022	16,121	2,677	.17
All other 8/-----	4,298	4,839	881	.18
All other miscellaneous cyclic chemicals--	135,949	131,539	35,961	.27
MISCELLANEOUS CHEMICALS, ACYCLIC				
Total-----	13,834,271	6,004,146	693,675	.12
Acetic acid, synthetic 9/-----	441,166	75,388	4,711	.06
Acetic acid salts, total-----	15,852	14,648	2,378	.16
Aluminum acetate-----	461	523	219	.42
Ammonium acetate-----	121	-	-	-
Cobalt acetate-----	184	-	-	-
Lead subacetate-----	80	50	26	.52
Potassium acetate-----	-	173	43	.25
All other-----	15,006	13,902	2,090	.15
Acetic anhydride, 100%, from all sources--	907,743	-	-	-
Acetone, total-----	482,491	195,139	13,747	.07
By fermentation-----	23,705	21,251	1,671	.08

600/2-80-
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United States
Environmental Protection
Agency

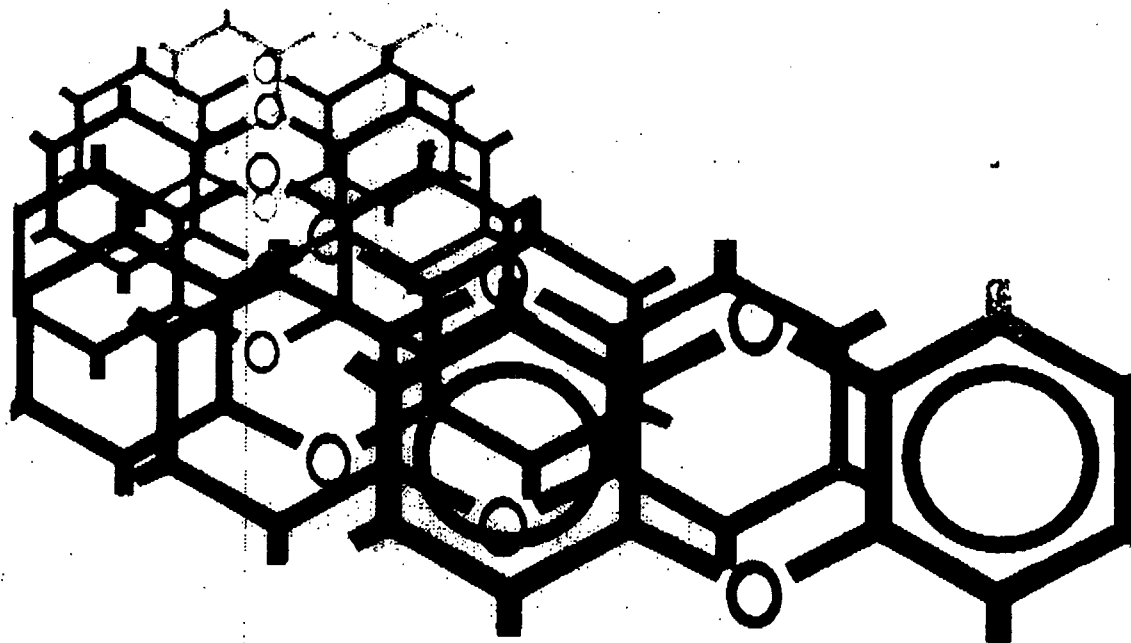
Industrial Environmental Research
Laboratory
Cincinnati OH 45268

Research & Development

EPA Dioxins

EPA-600/2-80-197

Dioxins



2069

On completion of the reaction, the methanol is evaporated, condensed, and recycled. At the same time, water is added to keep the batch contents in solution.

In this process, a toluene washing step is conducted to purify the product by removing some of the high-boiling impurities. Toluene condensed from the overhead of an auxiliary still is mixed into the cooled water solution of Na-2,4,5-TCP. The mixture is then allowed to stand quietly so that the water and organic phases can separate into layers. The organic layer, containing impurities, is decanted and returned to the toluene still as feed. The water layer, containing partially purified Na-2,4,5-TCP, can be used directly to manufacture a herbicide derivative. Alternatively, hydrochloric acid can be added to neutralize the mixture. Acidic 2,4,5-TCP precipitates and is separated from the liquid by centrifugation.

Many of the impurities created during this process, including 2,3,7,8-TCDD, accumulate in the bottom of the toluene still. Still bottoms are removed periodically to be discarded. Toluene still bottoms have been identified as the source of at least one exposure of the public to dioxins, and also as the source of one of the highest concentrations of 2,3,7,8-TCDD (40 ppm) ever discovered in such wastes (Watkins 1979, 1980; Richards 1979a). (Analysis of this waste sample is fully described in Section 4 of this report.)

As shown in Figure 31, the acidic 2,4,5-TCP is dried and either packaged for sale or used to manufacture other derivative products. One reference shows one or more stages of purification of the product after it is centrifuged from the water solution (World Health Organization 1977). One stage of high-vacuum distillation is conducted to create what is described as "agricultural grade 2,4,5-TCP." A second stage of distillation removes additional impurities to form "pharmaceutical grade 2,4,5-TCP." It is believed that all U.S. hexachlorophene is made from a distilled grade of this chemical.

Process details concerning the only remaining 2,4,5-TCP plant in the United States have not been released. It was reported in 1967 that this plant (Dow Chemical Company, Midland, Michigan) was using the water-based process described in its 1955 patent (Seonoe 1959; U.S. Patent Office 1957b), but this probably is not the case today. Another report states that the process is conducted with very careful temperature control to prevent the formation of dioxins (Sittig 1974). This source also indicates that still bottoms from the manufacture of 2,4,5-T at this plant are being discarded by incineration; therefore, a distillation is presumably being performed. It is not known whether these still bottoms are from a toluene washing still or from a product still.

Production—

Dow Chemical Company is apparently the only current producer of both 2,4,5-TCP and Na-2,4,5-TCP. Merck and Company has recently begun producing Na-2,4,5-TCP (Stanford Research Institute 1979). Current records related to the EPA Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) indicate that 42 companies, including Dow, are marketing 94 registered commercial products containing 2,4,5-TCP or its salts (U.S. Environmental Protection Agency 1978i). According to EPA sources, most, if not all, of these companies obtain the basic chemical from Dow (Reece 1978c).

Former 2,4,5-TCP manufacturing sites are listed in Table 14 by location and owner. Details of the processes used by these former producers are not known; however, "still bottoms" were said to be the source that created a dioxin exposure at Verona, Missouri (see Section 5). The methanol-based process with a toluene washing stage was used by Vertac, Inc. (Watkins 1980).

Current U.S. production figures for 2,4,5-TCP and its salts are not available (U.S. Environmental Protection Agency 1978i). In 1970, the estimated level of domestic production for 2,4,5-TCP and its derivatives was 50 million pounds (Crosby, Moilanen, and Wong 1973). In 1974, the reported annual world

TABLE 14. FORMER 2,4,5-TCP MANUFACTURING SITES*

Plant location	Owner
Niagara Falls, NY	Hooker Chemicals and Plastics (approximately 45 years) ^b
Jacksonville, AR	Reasor-Hill Corp. (1948-61) ^c Hercules, Inc. (1961-71) ^c Transvaal, Inc. (1971-78) ^c
Verona, MO	North Eastern Pharmaceuticals and Chemicals Co.
Monmouth Junction, NJ	Rhodia, Inc.
Linden, NJ	GAF Corp.
Chicago, IL	Naico Chemical Co.
Cleveland, OH	Diamond Shamrock Corp.

a—Unless otherwise noted, the information in this table was derived from Stanford Research Institute Directory of Chemical Producers, United States 1976-78, and U.S. International Trade Commission Synthetic Organic Chemicals, U.S. Production and Sales 1968, 1974, 1976-78.

b—Chemical Week 1979a.

c—Richards 1979a.

production of all chlorophenols and their salts was estimated to be 100,000 tons, or 200 million pounds (Nilsson et al. 1974).

Chlorophenol Derivatives with Confirmed Dioxin Content

The wide utilization of chlorophenols in chemical synthesis makes it virtually impossible to identify all the potential derivatives of this class of compounds. The following paragraphs outline the manufacture of derivatives that, upon analysis, have been reported to contain chlorinated dioxins. The products are all pesticides, which are usually made as only partially purified chemicals and are intended to be distributed rather broadly into the environment.

2,4-D, 2,4-DB, 2,4-DP, and 2,4-DEP—

The compound 2,4-dichlorophenoxyacetic acid (2,4-D) is a widely used herbicide and a close chemical relative of 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) described later in this section. A 50:50 mixture of these two chemicals, known as "Herbicide Orange" (earlier called "Agent Orange"), was used as a defoliant during the Vietnam conflict. The chemical formula of 2,4-D is shown below.

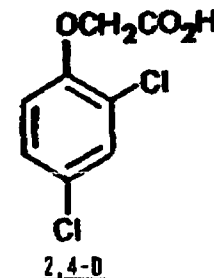


TABLE 17. DERIVATIVES OF 2,4,5-TRICHLOROPHENOL AND THEIR RECENT (1978) PRODUCERS^a

Derivative	Use	Current producers	Production location
2,4,5-T and esters and salts	Herbicide for woody plant control	Dow Chemical Company	Midland, MI
		North American Phillips Corp., Thompson-Hayward Chemical Co., subsidiary	Kansas City, KS
		PBI-Gordon Corp.	Kansas City, KS
		Riverdale Chemical Co.	Chicago Heights, IL
		Rhodia, Inc. ^b	Portland, OR or St. Joseph, MO
		Union Carbide Corp., Amchem Products, Inc., subsidiary	Ambler, PA Fremont, CA St. Joseph, MO
		Vertec, Inc., Transvaal, Inc., subsidiary ^c	Jacksonville, AR
Silvex and esters and salts (Fenoprop)	Herbicide for woody plant control; plant hormone	Dow Chemical Company	Midland, MI
		North American Phillips Corp., Thompson-Hayward Chemical Co., subsidiary	Kansas City, KS
		Riverdale Chemical Co.	Chicago Heights, IL
		Vertec, Inc., Transvaal, Inc., subsidiary ^c	Jacksonville, AR
Erbon	Herbicide, weed and grass killer	Dow Chemical Company ^d	Midland, MI
Ronnel (Fenchlorfos)	Insecticide	Dow Chemical Company	Midland, MI
Hexachlorophene	Bactericide	Givaudan Corporation	Clifton, NJ

a—Source: 1978 Directory of Chemical Producers, United States.

b—Rhodia is not listed in the 1978 Directory of Chemical Producers, United States, but has been recently cited by the EPA (Blum 1979) and the news media (Wall Street Journal 1979 and Environmental Reporter 1979a) as a manufacturer of 2,4,5-T.

c—In 1979 this company ceased production of 2,4,5-trichlorophenol for subsequent conversion to 2,4,6-T and silvex.

d—Although Erbon is not listed in the 1978 Directory of Chemical Producers, United States, several companies including Dow Chemical Company have registered Erbon pesticide products with the EPA. Dow is most likely the basic producer of the herbicide.

The highest production of 2,4,5-T occurred between 1960 and 1968, when it peaked at 16 million pounds per year (World Health Organization 1977). Between 1960 and 1970 a total of 106.3 million pounds was produced domestically (Kearney et al. 1973b). Production declined during the 1970's because of restrictions on use of the compound. In 1978 the annual U.S. usage of 2,4,5-T was estimated at only 5 million pounds (American Broadcasting Co. 1978). Because of EPA's March 1979 emergency ban on most of the remaining uses (Blum 1979), current usage is believed to be even less, probably less than 2 million pounds per year.

2,4,5-T may be produced and formulated in several forms as salts and esters of the acid. The low-volatility esters have been used most often. Emulsifiable concentrates of 2,4,5-T salts and esters contain 2 to 6 pounds per gallon of the acid equivalent; oil-soluble concentrates contain 4 to 6 pounds of active ingredient per gallon (U.S. Environmental Protection Agency 1978h).

Until 1979, this herbicide was probably produced by the seven companies shown in Table 18. Over a hundred companies were recently marketing more than 400 formulated pesticide products containing 2,4,5-T (U.S. Environmental Protection Agency 1978h).

TABLE 18. FORMER PRODUCERS OF 2,4,5-T (Prior to 1978)^a

Company	Location
Chemper	Portland, OR
Diamond Shamrock Corp.	Cleveland, OH
Hoffman-Taft, Inc.	Springfield, MO
Hercules, Inc.	Wilmington, DE
Monsanto Company	St. Louis, MO
Rorer-Amchem	Ambler, PA Fremont, CA St. Joseph, MO Jacksonville, AR
Wm. T. Thompson Company, Thompson Chemical Division	St. Louis, MO

a—Sources: Stanford Research Institute Directory of Chemical Producers, United States 1976 and 1977; United States Tariff Commission/United States International Trade Commission, Synthetic Organic Chemicals, United States Production and Sales 1968, 1974, 1976, and 1977.

Silvex—Silvex is a family of compounds that act as hormones to plants and can be used as specific herbicides. Formulations containing these materials were used for control of woody plants on uncropped land and for control of weeds on residential lawns until 1979, when sales of most products containing silvex were halted (Blum 1979). Silvex is still being used on noncrop areas, on rangelands and orchards, and on rice and sugar cane (Toxic Materials News 1979b; Chemical Regulation Reporter 1979c).

The chemical name for silvex acid is 2-(2,4,5-trichlorophenoxy) propionic acid. It is also known as Fenoprop, 2,4,5-TP, and 2,4,5-TCPPA.

U. S. Phosphoric Products, Div. Tennessee Corp.

Virginia-Carolina Chemical Corp.
Woodward & Dickerson, Inc.

SURFACE ACTIVE AGENTS

Aceto Chemical Co., Inc.
Antara Chem., Div. of Gen. Aniline & Film Corp.
Atlantic Refining Co.
Atlas Powder Co.
National Aniline Div., Allied Chem. & Dye Corp.
Ninol Laboratories, Inc.
Nitro-Form Agr. Chemicals, Inc.
Rohm & Haas Co.
Tennessee Corp.
Victor Chemical Works

SYSTOX

California Spray-Chemical Corp.
Chemagro Corp.
Chipman Chemical Co.
Dow Chemical Co.
Faesy & Besthoff, Inc.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
Pennsylvania Salt Mfg. Co. of Wash.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.
Stauffer Chemical Co.
United-Heckathorn
Woolfolk Chemical Works, Ltd.

TALC

Baker & Bro., H. J.
Kennedy-Minerals Co., Inc.
McIver & Son, Alex. M.
Thompson-Hayward Chemical Co.
Vanderbilt Co., Inc., R. T.
Whittaker, Clark & Daniels, Inc.

TANKAGE

American Agricultural Chemical Co.
Ashcraft-Wilkinson Co.
Baker & Bro., H. J.
Hollingshurst & Co., Inc.
McIver & Son, Alex. M.

TANKAGE, CHI-ORGANIC

McIver & Son, Alex. M.

TARTAR EMETIC

Pfizer & Co., Inc., Chas.

TCA, SODIUM

American Chemical Paint Co.
Chipman Chemical Co.
Dow Chemical Co.
General Chem. Div., Allied Chem. & Dye Corp.
Thompson-Hayward Chemical Co.

TEPP

American Potash & Chemical Corp.
California Spray-Chemical Corp.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
United-Heckathorn

TERRACLORE

Powell & Co., John, Div. Olin Mathieson Chem. Corp.

THIRAM

Aceto Chemical Co., Inc.

Naugatuck Chem. Div., U. S. Rubber Co.
Pennsylvania Salt Mfg. Co. of Wash.

TOBACCO DUST

Diamond Alkali Co.
Faesy & Besthoff, Inc.
McIver & Son, Alex. M.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.
Prentiss Drug & Chemical Co., Inc.
Thompson-Hayward Chemical Co.

TOBACCO STEMS

Baker & Bro., H. J.
Diamond Alkali Co.
Faesy & Besthoff, Inc.
McIver & Son, Alex. M.

TOXAPHENE FORMULATIONS

American Potash & Chemical Corp.
California Spray-Chemical Corp.
Chipman Chemical Co.
Davison Chemical Co., Div. of W. R. Grace & Co.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
McLaughlin Gormley King Co.
Pennsylvania Salt Mfg. Co. of Wash.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.
Prentiss Drug & Chemical Co., Inc.
Private Brands, Inc.
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
United-Heckathorn
Woolfolk Chemical Works, Ltd.

TOXAPHENE, TECHNICAL

Hercules Powder Co.
Prentiss Drug & Chemical Co., Inc.

TRACE ELEMENT COMPOUNDS

Calumet Div., Calumet & Hecla, Inc.
Climax Molybdenum Co.
Davies Nitrate Co., Inc.
Florida Agricultural Supply Co.
Nitro-Form Agr. Chemicals, Inc.
Pfizer & Co., Inc., Chas.
Planters Fertilizer & Phosphate Co.
Tennessee Corp.

TRICHLOROPHENOL

Dow Chemical Co.

TRIPLE SUPERPHOSPHATE

See Superphosphate, Concentrated

TUNG MEAL

Ashcraft-Wilkinson Co.
Baker & Bro., H. J.
McIver & Son, Alex. M.

2,4-D FORMULATIONS

American Chemical Paint Co.
California Spray-Chemical Corp.
Chemagro Corp.
Chipman Chemical Co.
Diamond Alkali Co.
Dow Chemical Co.
Faesy & Besthoff, Inc.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
McLaughlin Gormley King Co.
Pfizer & Co., Inc., Chas.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.

Private Brands, Inc.
Standard Agricultural Chemicals
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
United-Heckathorn
Woolfolk Chemical Works, Ltd.

2,4-D, TECHNICAL

Chemagro Corp.
Chipman Chemical Co.
Diamond Alkali Co.
Frontier Chemical Co.
Private Brands, Inc.
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.

2,4-D SOLUBILIZERS

Commercial Solvents Corp.
Nopco Chemical Co.
Standard Agricultural Chemicals
Thompson-Hayward Chemical Co.
Woodward & Dickerson, Inc.

2,4-D—2,4,5-T FORMULATIONS

American Chemical Paint Co.
Chipman Chemical Co.
Diamond Alkali Co.
Dow Chemical Co.
Faesy & Besthoff, Inc.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.
Private Brands, Inc.
Standard Agricultural Chemicals
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
United-Heckathorn
Woolfolk Chemical Works, Ltd.

2,4,5-T FORMULATIONS

American Chemical Paint Co.
California Spray-Chemical Corp.
Chemagro Corp.
Diamond Alkali Co.
Dow Chemical Co.
Faesy & Besthoff, Inc.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
McLaughlin Gormley King Co.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.

Standard Agricultural Chemicals
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
United-Heckathorn
Woolfolk Chemical Works, Ltd.

2,4,5-T—LOW VOL ESTERS

American Chemical Paint Co.
Chemagro Corp.
Chipman Chemical Co.
Diamond Alkali Co.
Faesy & Besthoff, Inc.
Florida Agricultural Supply Co.
General Chem. Div., Allied Chem. & Dye Corp.
Powell & Co., John, Div. Olin Mathieson Chem. Corp.
Private Brands, Inc.
Standard Agricultural Chemicals
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.
United-Heckathorn
Woolfolk Chemical Works, Ltd.

2,4,5-T, TECHNICAL

Chemagro Corp.

Chipman Chemical Co.
Diamond Alkali Co.
Stauffer Chemical Co.
Thompson-Hayward Chemical Co.

UREA & UREA PRODUCTS

Armour Fertilizer Works
Atkins, Kroll & Co.
Baker & Bro., H. J.
Davies Nitrate Co., Inc.
E. I. duPont de Nemours & Co., Inc.
Grace Chemical Co.
Grand River Chem. Div., Deere & Co.
Greiff & Co., Inc., R. W.
Hollingshurst & Co., Inc.
Nitro-Form Agr. Chemicals, Inc.
Nitrogen Div., Allied Chem. & Dye Corp.
Planters Fertilizer & Phosphate Co.
Sohio Chemical Co.
Southern Nitrogen Co., Inc.
Standard Agricultural Chemicals
Woodward & Dickerson, Inc.

UREA-AMMONIA SOLUTIONS

Ashcraft-Wilkinson Co.
Bradley & Baker
Commercial Solvents Corp.
E. I. duPont de Nemours & Co., Inc.
Grace Chemical Co.
Grand River Chem. Div., Deere & Co.
Mississippi River Chemical Co.
Nitrogen Div., Allied Chem. & Dye Corp.
Sohio Chemical Co.
Southern Nitrogen Co., Inc.
Woodward & Dickerson, Inc.

UREA-AMMONIUM NITRATE-AMMONIA SOLUTIONS

Ashcraft-Wilkinson Co.
Bradley & Baker
Coal By-Products Div., Alabama By-Products Corp.
Mississippi River Chemical Co.
Nitrogen Div., Allied Chem. & Dye Corp.
Sohio Chemical Co.

UREA CONDITIONERS

United Clay Mines Corp.

UREA-FORM

Nitro-Form Agr. Chemicals, Inc.

VERMICULITE

Ashcraft-Wilkinson Co.
Zonolite Co., Terra-Lite Div.

WARFARIN

Penick & Co., S. B.
Prentiss Drug & Chemical Co., Inc.
Private Brands, Inc.
Summers Fertilizer Co.
Thompson-Hayward Chemical Co.
Wisconsin Alumni Research Foundation

WEED KILLERS

See Herbicides

WEIGHERS AND SAMPLERS

Shuey & Co., Inc.
Wiley & Co., Inc.

WETTABLE POWDER CARRIERS

Huber Corp., J. M.
Kennedy-Minerals Co., Inc.
Minerals & Chemicals Corp. of America
Vanderbilt Co., Inc., R. T.

WETTING AGENTS

Aceto Chemical Co., Inc.
American Cyanamid Co., Agr. Chem. Div.

NEW HAMPSHIRE

DOVER

Judson Dunaway Corp. P

Office & plant: 3rd & Grove Sts.
Plant also at Kentland, Ind.
3, aer.

S. Judson Dunaway, Bd. Chmn.; Sam Knox, Pres.; Eugene Jalbert, Exec. Vice-Pres. & Treas.; Geo. L. Jaques, Vice-Pres.; Chg. Prod.; Nelson C. Latremore, Vice-Pres.; Chg. Adv.

NEW JERSEY

BAYONNE

Stauffer Chem. Co. P

Plant. Main office: New York City.
1, 2, 3, fum.
W. Bogart, Plant Mgr.

BOUND BROOK

Chipman Chem. Co., Inc. P

Main office & plant. Phone: EL 6-6100. Plants also at Pasadena, Tex.; Palo Alto, Calif.; Portland, Ore.; Chicago, Ill.; N. Kansas City, Mo.; Bessemer, Ala.; St. Paul, Minn.

1, 2, 3, 4, 8, du, em, wp.

W. H. Moyer, Pres.; I. W. Bales, Vice-Pres. & Dir. of Field Res.; B. J. Smith, Vice-Pres., Chg. Sales; C. M. Bernuth, Vice-Pres. & Treas.; C. P. Inman, Asst. Sec.; C. A. McAloon, Sec. & Asst. Treas.; G. T. Moore, Purch. Agent.

The Sherwin Williams Co. P

Plant. Phone: EL 6-0486. Main office: Cleveland, O. CNJ, LV RR.
1, 3.

E. F. Rothemich, Supt.

BRIDGETON

G.L.F. Soil Bldg. Service F

C plant. Phone: 9-1611. 15,000 tons cap. CNJ RR. Main office: Ithaca, N. Y.
John Litzelman, Supt.

Star Fish & Bone Fert. Co. F

Office & C plant: 67 S. Laurel St.
Phone: office, 9-0704, 0705; plant, 9-

0928. Est. 1907. 10,000 tons cap. CNJ, PRSL siding.

Chas. A. LuBow, Pres.; Albert Serata, Vice-Pres.; J. G. Kolman, 2nd Vice-Pres.; Benj. Sarata, Treas.; D. M. Lourie, Sec.

CAMDEN

Camden Coke Plant P

Front & Chestnut. Phone: EM 5-7000, Ext. 261. Penna RR.
Flotation sulfur paste. 2,000 tons cap.
C. G. Kelly, Mfg. Eng.; L. R. Smith, Sales Rep.

CARTERET

The American Agr. Chem. Co. F

Sales office & A factory. Phone: 1-5171. CNJ RR. Main office: New York City.

Armour Fert. Works F

A plant. General office, Atlanta, Ga.
R. Post, Div. Mgr.

CLIFTON

O. E. Linck Co., Inc. P

Rt. 46 & Valley Rd. Phone: PI 4-2565.
1, 2, 3, 4, 8, du, em, wp.
O. E. Linck, Pres.; Wm. Van Buren, Vice-Pres.; Harry Funk, Purch. Agent & Plant Mgr.

COLLINGSWOOD

Fert. Products Corp. F & P

Office & plant: 32 White Horse Pike.
Phone: 5-6800. Est. 1930. WJC, Penna. siding.

D plant. 2,500 tons cap. 3.
M. E. Fox, Pres.; Harold P. Fox, Gen. Mgr., Sec. & Treas. & Purch. Agent.

CRANBURY

Chamberlin & Barclay, Inc.* F & P

DAYTON

Dayton Fert. Corp. F & P

Georges Rd. & Penna. RR. Phone: Monmouth Jct. 7-6011. Penna. RR.
C plant. 25,000 tons cap. du, em, wp. 500 tons cap.
Chester S. Edwards, Pres. & Treas.; Wm. A. Nist, Gen. Mgr. & Purch. Agent; S. Schmidt, Sec.

EAST ORANGE

Rotenone Products Co. P

110 Eaton Pl. Phone: ORange 5-5600.

3, du, em, wp.

Saul Steinburg, Pres., Treas. & Purch. Agent; Herman L. Steinberg, Vice-Pres. & Sec.

ENGLISHTOWN

G.L.F. Soil Bldg. Service F

C plant. Phone: 7-3481. 10,000 tons cap. Penna. RR. Main office: Ithaca, N. Y.

Louis Scudder, Supt.

GARFIELD

B. R. Elk & Co., Inc. P

193 Palisade Ave. Phone: PR 7-3803.
3, 5, 6, 11.

B. R. Elk, Pres.; J. C. Elk, Vice-Pres.; R. Kronman, Sec.; B. Frank, Purch. Agent.

HACKETTSTOWN

The United By-Products Co. F

Office & D plant. Est. 1931. 2,500 tons cap. DL&W siding.
K. T. Beatty, Partner & Supt.; S. J. Beatty, Partner.

HADDONFIELD

Calif. Spray-Chem. Corp. P

Dist. office: 133 Kings Hwy. E.
Phone: 9-7181. Main office: Richmond, Calif.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, du, em, wp, aer.

Dr. Robt. T. Wallace, Dist. Mgr. (Northeast); Edwin B. Acree, Jr., Dist. Mgr. (New England).

HAMMONTON

Parkhurst Farm Supply P

301 N. White Horse Pike. Phone: LO 1-0960, 0961.

1, 3, du. 3,000 tons cap.

W. Hubbard Parkhurst, Jr., Owner.

Rice & Caruso Farm Supply Co. F & P

Office & plant: 10-12 West End Ave.
Phone: LO 1-0124. PRSL RR.

D plant (starter sols.). 1, 3, du, wp.
Leonard Caruso, Pres., Gen. Mgr. & Purch. Agent; Eliz. Caruso, Treas.; Helen Lo Sasso, Sec.

F - FERTILIZER A Complete fertilizer plant with acid chambers, superphosphate and mixing equipment. B Superphosphate and mixing plant with rock grinding, acidulating and mixing equipment, without acid chambers. C Ammoniate and mixing plant producing directly only ammoniates but with mixing equipment and no acid chambers, rock grinding or acidulating equipment. D Dry mixing plant with mixing equipment only and purchasing all basic materials. D-1 Bulk mixing operations only. E Liquid mixing plant with mixing equipment only and purchasing all basic materials for producing liquid fertilizers. fert. sprd. Also spread fertilizer. *No response to 1957 questionnaire.

HIGHTSTOWN

Bennett-Mount Co. F & P
Wycoff Ave.; P. O. Box 245. Phone: 8-1100. Est. 1920. Penna. siding.
D plant. 4,500 tons cap. 1, 3, du.
J. H. Mount & G. M. Osgood, Part.

JAMESBURG

Baugh & Sons Co. P
Plant. Phone: 1-0007. Main office: Baltimore, Md.
1, 3.
F. J. Illnick, Plant Mgr.

JERSEY CITY

Reade Mfg. Co., Inc. P
Office: 135 Hoboken Ave. Plant at N. Kansas City, Mo.
2.
Chas. H. Reade, Pres.; Chas. F. Reade, Vice-Pres.; Leonard J. Reade, Sec.
Xterminator Products Corp. P
219 Monticello Ave. Phone: HE 4-6637.
3, 5, em.
Dorothy M. Collins, Pres.; Robt. D. Picasso, Vice-Pres. & Gen. Mgr.; Harry J. Manning, Sec. & Purch. Agent.

KENILWORTH

Halco Chem. Co. P
Lafayette Ave.
1, 2, 3, 4, 5, 6, 7, 8, 10, 11.
Thos. M. Conley, Pres., Treas. & Purch. Agent; Albert W. Lucken, Vice-Pres.; Lloyd F. Hughes, Sec.

KINGS

Allen Co. F
Plant. LV RR. Cap.: 200 tons org. fert. & 6 mil. fert. pots. Office at Pitts-town, N. J.

LINDEN

Residex Corp. P
1500 W. Elizabeth Ave. Phone: WA 5-1320.
2, 3, 5, fum.
J. E. Sameth, Pres.; Dr. John V. Lembach, Vice-Pres. & Gen. Mgr.; M. E. Sameth, Vice-Pres.; Ailene S. Harris, Sec.-Treas.

LONG BRANCH

H. L. Woudhuysen & Assoc., Inc.* P

METUCHEN

Chem. Insecticide Corp. P
Plant: 30 Whitman Ave. Phone: 6-0776. Main office: Brooklyn, N. Y. Penna. RR.
1, 2, 3, 4, 5, 11, du, em, wp.
A. F. Sherry, Plant Mgr.

MILLVILLE

The Espoma Co. F
Office & D plant. Phone: TA 5-0542. Est. 1934. 5,000 tons cap. PRSL siding.
H. G. Sanders, Pres.

MOORESTOWN

Calif. Spray-Chem. Corp. P
Eastern Research Lab.: N. Church & New Albany Rd.; P. O. Box 118. Phone: BE 5-0850.
Dr. T. W. Reed, Asst. Mgr. Research.

Corona Chem. Co., Div., Pittsburgh Plate Glass Co. P
Phone: BE 5-1455. Also Milwaukee, Wisc. Penna. RR.
1, 2, 3.
A. C. Hobbie, Mgr.; E. C. Baillie, Sales Mgr.; E. J. Peters, Purch. Agent.

MORRIS PLAINS

Standard Lab., Inc. P
Office & plant: 201 Tabor Rd.
3, 5, 7.
E. H. Bobst, Pres.; Douglas Brown, A. E. Driscoll & C. A. Pennock, Vice-Pres.; John D. Miller, Treas.; Robt. B. Clark, Sec.

NEW BRUNSWICK

W. A. Cleary Corp. P
Office & plant: P. O. Box 749. Phone: CH 7-8000. Branches: Chicago, Ill. & Belleville, Ont., Can. Penna. RR.
1, 2, 8, 11.
W. A. Cleary, Pres.; G. W. Bateman, Treas.; Dr. Paul Sartoretto, Res. Dir.; Miss V. G. White, Purch. Agent; J. Mosby, Plant Mgr.

NEWARK

Diamond Alkali Co. Chlorinated Products Div. P
Plant. Main office: Cleveland, O.

Prentiss Drug & Chem Co., Inc. P
Plant: 338 Wilson Ave. Office: New York City.
3, 5, aer.
L. Piambino, Plant Mgr.

PASSAIC

Reliable Chem. Co. P
Box 361. Phone: GR 3-1150.
1, 3, moth prev. prod.
H. J. Reichel, Pres.; W. Reichel, Vice-Pres. & Purch. Agent; V. Flick, Sec.; H. L. Reichel, Treas.; D. Bloom, Plant Mgr.

PATERSON

B. G. Pratt Co. P
204 - 21st Ave. Phone: MU 4-4797.
1, 3.
B. G. Pratt, Jr., Pres. & Treas.; Robt. W. Heuer, Sec.; Henry B. Pratt, Vice-Pres. & Sales Mgr.

PAULSBORO

Penn. Salt Mfg. Co. F
I. P. Thomas Div. F
A plant. Phone: HA 3-2051. RR: PRSL. Main office: Philadelphia, Pa.
R. R. Hull, Div. Mgr.; F. R. Anspach, Sales Mgr.; George Brown, Plant Mgr.

PENNS GROVE

Neil C. Miller P
Layton's Lake.
3.
Neil C. Miller, Prop.

PITTSBOWN

Allen Company F & P
Office & plant. Phone: Clinton 397-J-3. Plant also at Kings, N. J.
D plant. 1, 2, 3, 5, 7.
D. L. Allen & R. E. Allen, Parts.

PROSPECT PLAINS

Bennett & Clayton Co., Inc. F & P.
Phone: Cranbury 5-0666. Est. 1928. Penna. siding.
D plant. 3,500 tons cap. 1, 3.
Edmund A. Rice, Pres.; Victor Rice, Vice-Pres.; Bernadette Rice, Sec.-Treas.

ROBBINSVILLE

Vahlsing Agr. Chem. Corp. P
Plant. Office: Elsa, Tex.
1, 3, 7, 8, 10.
Maurice Burditt, Plant Mgr. & Purch. Agent.

P - PESTICIDES

du Dusts	co Concentrates	1 Fungicides	4 Defoliants	7 Poison baits	10 Soil fumigants
em Emulsions	sol Solutions	2 Herbicides	5 Rodenticides	8 Seed treatments	11 Wood preservatives
wp Wettable Powders	aer Aerosols	3 Insecticides	6 Repellents	9 Soil treatments	12 Grain fumigants

pest. appl. Also engaged in application of pesticides. *No response to 1957 questionnaire.

NEW JERSEY (Cont'd)

ROCHELLE PARK

The Terre Co. F & P

Office: 142 Rochelle Ave. Phone: HU 7-7090. Plant: Totowa, N. J. Est. 1882. NYS&W siding.

D plant. 5,000 tons cap. 1, 3, 7, 9, 10, 11, du, wp.

T. A. Terhune, Pres.; C. L. Terhune, Treas.; O. W. Terhune, Sec.; Roy C. Bossolt, Purch. Agent.

SKILLMAN

Goulard & Olena, Inc. F & P

Phone: HO 6-0600, 0601. Est. 1925. Rdg., B&O siding.

D-E plant. 4,000 tons cap. 1, 2, 3, wp.

Alexander Goulard, Pres.; H. G. Olena, Sec.-Treas.; H. Wichmann, Asst. Sec.-Treas.; Chris Raba, Supt.

SOUTH KEARNEY

G.L.F. Soil Bldg. Service F

C plant. Phone: Newark MA 3-5118. 20,000 tons cap. Penna. RR. Main office: Ithaca, N. Y.

D. F. Garrison, Supt.

Standard Chlorine Chem. Co., Inc. P

115 Jacobus Ave. Phone: MI 2-1703. Penna. RR.

6.

A. Wener, Pres.; D. W. Blaine, Vice-Pres. & Plant Mgr.

SOUTH PLAINFIELD

Calif. Spray-Chem. Corp. P

Plant: Metuchen & Harmich Rds. Phone: Plainfield 7-1400. CNJ RR. Main office: Richmond, Calif.

1, 2, 3, 4, 5, 6, 7, 8, 10, 11, aer, du, em, wp.

Harold A. Beckman, Plant Mgr.

SPRINGFIELD

Andrew Wilson, Inc. F & P

Office & plant. 5,000 tons cap.

D plant. 5,000 tons cap. 1, 2, 3, du, sp.

C. H. Morrison, Pres.; J. E. Morrison, Vice-Pres.; H. C. Heim, Sec.; C. H. Morrison, Treas.

Doggett-Pfeil Co.

F & P

Office Phone: DR 6-5900. Plant: Milburn, N. J. (Spring & Essex St.) DL&W siding. Div.: Doggett-Pfeil Co. of N. Y., Inc., Cedar Swamp Rd., Glen Head, L. I., N. Y.

C-E plant. Spec. & sol. ferts. 1, 2, 3, 9, 11.

Albert S. Pfeil, Pres.; Sidney H. Doggett, Jr., Vice-Pres., Sec. & Treas.; Mrs. Murray Koonz, Purch. Agent; Harry G. Hyson, Div. Pres.

TENNETT

Reed & Perrine, Inc. F & P

Office & plant. Phone: Freehold 8-0373. Est. 1916. Penna. siding.

D plant. 7,500 tons cap. du. 125 tons cap.

Frank Perrie, Pres.; J. S. Satterthwaite, Vice-Pres.; F. D. Perrine, Treas.; Geo. Chambers, Sec.

TOTOWA

The Terre Co. F & P

Plant: Cor. Rt. 46 & Union Blvd. R. D. Paterson, N. J. Phone: Little Falls 4-1500. DL&W RR. Main office: Rochelle Park, N. J.

D plant. 1, 3, 7, 9, 10, 11.

Roy C. Bossolt, Purch. Agent.

TRENTON

Trenton Bone Fert. Co. F

Office & D plant. Est. 1889. 20,000 tons cap. Rdg., Penna. siding.

Walter N. Updike, Pres.; C. M. Jochem, Vice-Pres.; W. Albert Grove, Sec.-Treas.

VINELAND

Lirio Chem. Co.* P

Vineland Poultry Labs. P

E. Landis Ave. Phone: 7-2411. Penna., RdgSL RR. Br. office & whse: Los Angeles 37, Calif.

3, 5, 7.

Dr. Arthur D. Goldhaft, Dir.; Dr. N. W. Wernicoff, Prod. Chief; Dr. Tevis M. Goldhaft, Gen. Mgr.; Jos. Boorster, Sales Mgr.; Lee Merson, Chief, Res. & Dev.

Wilde Farm Supply Co., Inc. F

Office & C plant. Phone: 7-1067. Est. 1886. 7,000 tons cap. CNJ siding. F. U. Wagner, Pres. & Gen. Mgr.

WEST CALDWELL

Rockland Chem. Co., Inc. P

Passaic Ave., P. O. Box 204. 2, 3, 5, 7, 11, aer, em.

John N. Wittpenn, Pres. & Purch. Agent; John R. Wittpenn, Vice-Pres.; John D. Buckley, Sec. & Plant Mgr.

WOOD-RIDGE

F. W. Berks & Co., Inc. P

On Erie RR.

1. (carbamate, org. & inorg. merc.) M. H. McAllister, Exec. Vice-Pres.;

G. W. Taylor, Vice-Pres. & Treas.; John Bratt, Asst. Vice-Pres.; H. Ward, Asst. Sec.; E. A. Froetscher, Sales Mgr.

WOODSTOWN

South Jersey Farmers Exch. F

Office & C plant. Est. 1909. 10,000 tons cap.

A. B. Waddington, Pres.; Sherwin B. Brown, Gen. Mgr.

YARDVILLE

G.L.F. Soil Bldg. Service F

C plant. Phone: Trenton EX 6-8221. 20,000 tons cap. Penna. RR. Main office: Ithaca, N. Y.

Allan D. Hoxie, Supt.

NEW MEXICO

ALBUQUERQUE

Albuquerque Chem. Co., Inc. P

424 Candelaria, N.W. Phone: 4-1671.

3, 5, du, em, wp.

Jesse E. Baxter, Pres.; Thornton J. Smith, Treas.

Edmunds Chem. Co. P

2200 S. 2nd St. Phone: 3-3506. AT&SF RR.

1, 3, du. 1,000 tons cap.

Edw. Edmunds, Jr., Owner & Gen. Mgr.; Morris Alcorn, Office Mgr.

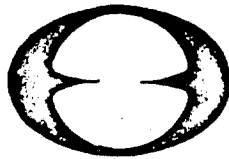
New Mexico Fert. Co. F

Office: Box 462. Phone: 3-5525.

D plant: 1815 - 4th St., N.W. 1,000 tons cap. AT&SF RR.

Arthur Ravel, Pres.; John Thomas, Plant Mgr.

F - FERTILIZER A Complete fertilizer plant with acid chambers, superphosphate and mixing equipment. B Superphosphate and mixing plant with rock grinding, acidulating and mixing equipment, without acid chambers. C Ammoniate and mixing plant producing directly only ammoniates but with mixing equipment and no acid chambers, rock grinding or acidulating equipment. D Dry mixing plant with mixing equipment only and purchasing all basic materials. D-1 Bulk mixing operations only. E Liquid mixing plant with mixing equipment only and purchasing all basic materials for producing liquid fertilizers. fert. sprd. Also spread fertilizer. *No response to 1957 questionnaire.



EARTHLINE COMPANY

PASSAIC OFFICE

253 RIVER DRIVE
PASSAIC, N. J. 07055
(201) 773-9490

LINDEN OFFICE

FOOT OF SOUTHWOOD AVE
& TREMLEY POINT
PO BOX 485
LINDEN N. J. 07036
(201) 562-4747

LYNDHURST OFFICE

1099 WALL STREET WEST
LYNDHURST, N. J. 07071
(201) 935-7850

REPLY TO

December 14, 1977

Passaic Office

Passaic Valley Sewerage Commission
600 Wilson Avenue
Newark, New Jersey 07105

Gentlemen:

This letter will serve to clarify certain items contained in our application to discharge that is currently being considered by the PVSC. The letter may also serve as an amendment to the application and attached thereto.

The present application indicates a maximum discharge requirement of 1,000,000 gallons per day and further requires the discharge to contain a maximum total suspended solids at 15,000 parts per million. This does not mean the total volume that we wish to discharge will contain the high amount of suspended solids. We fully understand that this amount of solids when calculated into dry weight will represent a substantial increase in your current sludge removal volume. Based on a 30 day average, the maximum amount of dry solids that we will require to be discharged will be 15 tons per day. The peak load during any day during the monthly period would be 30 tons.

Consideration should be given to the fact that a substantial portion of this material will be generated by current customers of the PVSC which are presently discharging to your system. Therefore, the above figures cannot be considered in their entirety an increase in loading at your facility. An exact estimate of percentage of current PVSC customers that will be utilizing this facility cannot be determined at this time for any specific date in the future. However, we strongly feel that once PVSC pre-treatment requirements are established and enforced that the percentage of our customers that are presently discharging to your system may reach 50%. Additionally, we feel that the treatment and recovery capabilities of this facility will greatly offset the relatively small additional loading that we would require of your facility.

845470001

EARTHLINE COMPANY

Page 2

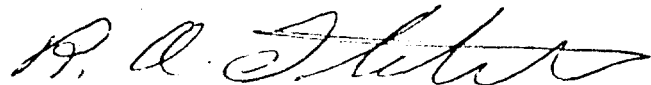
Passaic Valley Sewerage Commission

December 14, 1977

Thank you for your cooperation in this matter.

Very truly yours,

EARTHLINE COMPANY

A handwritten signature in dark ink, appearing to read "R. A. Fletcher", with a stylized, flowing script.

Robert A. Fletcher
Vice President and General Manager

RAF/dlw

845470002

INDUSTRIAL SEWER CONNECTION APPLICATION

Name Earthline Company

Number & Street 100 Lister Avenue

Municipality Newark, New Jersey

Primary Standard Industrial Classification Code 4990

Principal Product Fuel and Inorganic Acids

Principal Raw Material Industrial Chemical By-Products

Flow (Indicate the volume of waste discharged to the PVSC system in thousand gallons per day and whether the discharge is intermittent or continuous)

	<u>East Connection-750,000 Gallons</u>
	<u>Per Day- Continuous</u>
	<u></u>
	<u></u>
	<u></u>

The undersigned being the Lessee of the above
(owners, lessee, tenant, etc.)
property does hereby request a permit to Use an in-
(install, use)
dustrial sewer connection to discharge into the 18 inch
(size)
municipal sewer located at 100 Lister Ave., Newark, N.J.
(municipality, PVSC)
The size of the connection is 12 inches.

A plan of the property showing accurately all sewers and drains now existing, together with existing or proposed sampling point, is attached hereto as Exhibit "A".

Details of the connection to the public sewer is shown as Exhibit "B".

A schedule of all process waters and industrial wastes produced or expected to be produced at said property, including a description of the character of each waste, daily volume, maximum rates of discharge, duration of discharge, and a representative analysis is attached as Exhibit "C".

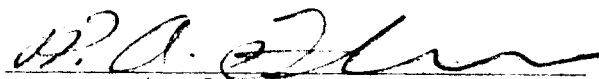
845470003

The name and telephone number of the person to call for further details is Robert Fletcher, 1-201-773-9490 or 1-201-344-5636.

In consideration of the granting of this permit, the undersigned agrees:

- (1) To furnish any additional information relating to the installation or use of the industrial sewer for which this permit is being sought, if requested by PVSC.
- (2) To accept and abide by all the rules and regulations of the PVSC and of the approving municipality.
- (3) To operate and maintain any waste pretreatment facilities, if such facilities are required by the USEPA, the NJDEP, or the PVSC, in an efficient manner at all times, at no expense to PVSC.
- (4) To cooperate at all times with the PVSC and their authorized representatives in their inspection, sampling and studying of the industrial wastes, and any facilities for pretreatment.
- (5) If the industry is classified as a major industry (USEPA definition) then, if requested by PVSC, install sampling or monitoring equipment as approved by PVSC.
- (6) To pay user charges and industrial cost recovery charges when such charges are promulgated by PVSC.
- (7) To notify PVSC immediately in the event of an accident, negligence or other occurrence that occasions a discharge to the sewer of any waste not covered by the permit or of a discharge to any of the streams under the jurisdiction of the PVSC.
- (8) To comply with all applicable Federal and State statutes and regulations as well as the terms of any National Pollutant Discharge Elimination System Permit to Discharge issued by the United States Environmental Protection Agency to the PVSC.

DATE: November 21, 1977

SIGNED: 

(Applicant)

Vice-President/Gen. Mngr.

(Title)

If a corporation, attach resolution giving authority to make application.

845470004

The undersigned hereby certifies that it is the owner of the property and agrees that it will be responsible for all user charges and/or industrial cost recovery for any industrial waste emanating from the above property, and failure to pay such costs when levied shall subject the property to a lien on such property not to be lifted until all such costs plus interest shall be paid.

DATE: 12-11-77

SIGNED: [Signature]

TITLE: Director of Engineering

If a corporation, attach resolution giving authority to sign application.

The Newark hereby approves the above applica-
(municipality)

tion and certifies to PVSC that it will be responsible for payment for the wastewater discharge from the above plant into the PVSC system in accordance with the rules and regulations of the PVSC. This approval is conditional and subject to the constraints and conditions of the attached letter.

DATE: December 8, 1977

SIGNED: [Signature]
(Authorized Municipal Official)

TITLE: Director of Engineering

APPROVED AT PVSC BOARD MEETING OF _____

SIGNED: _____

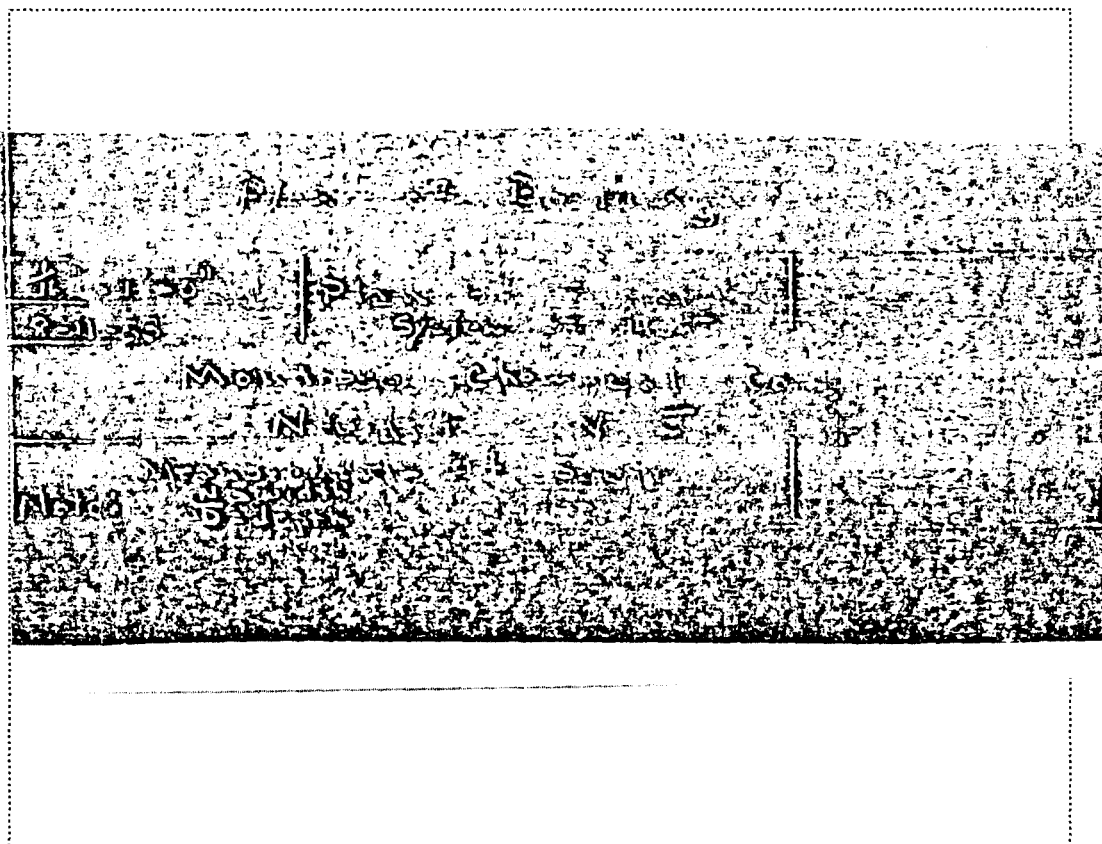
Clerk of the Passaic
Valley Sewerage Com-
missioners

845470005

A

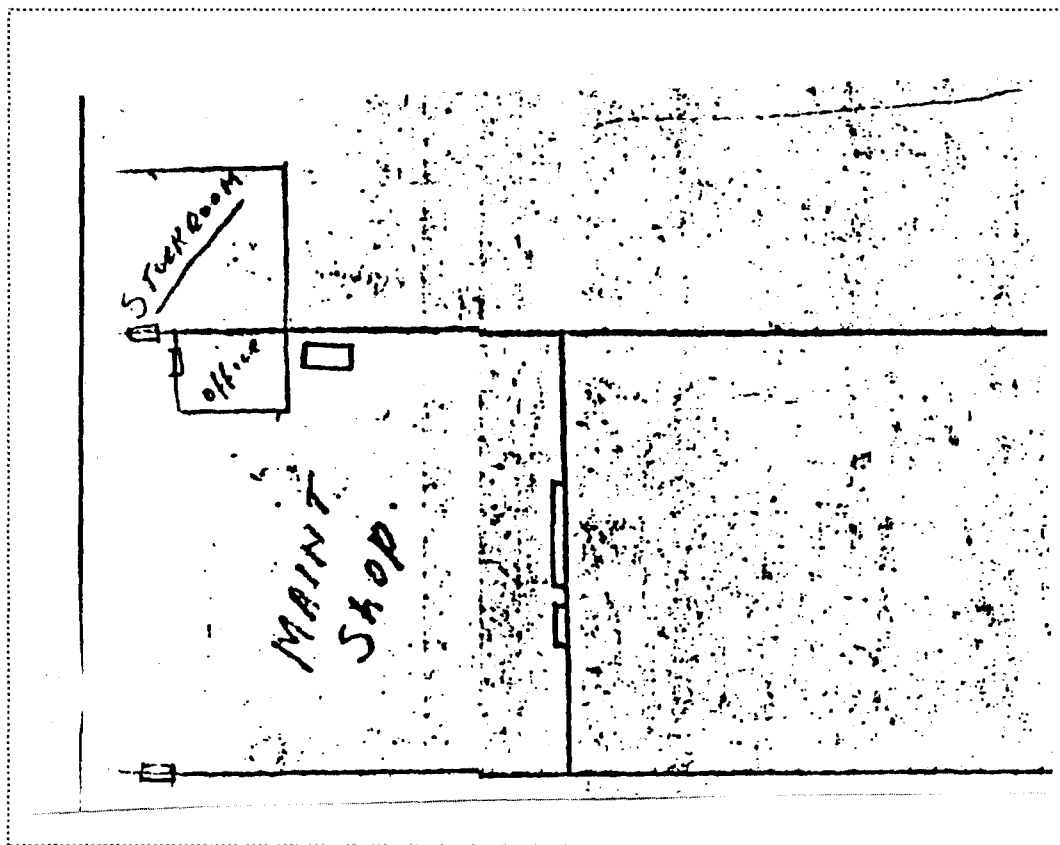
845470008

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CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007



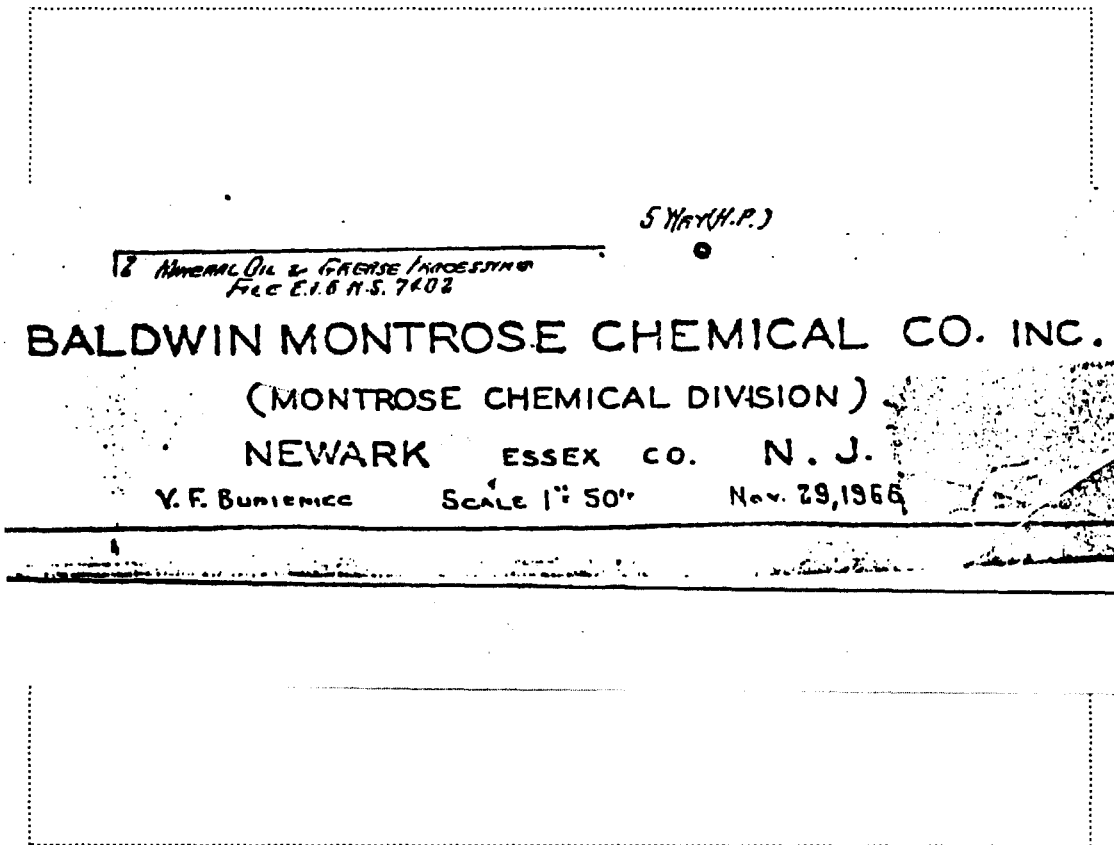
845470019

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007



845470020

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007



5 MAY (H.P.)

18 MINERAL OIL & GREASE / NO. 57402
FILE E.I.G. N.S. 7402

BALDWIN MONTROSE CHEMICAL CO. INC.

(MONTROSE CHEMICAL DIVISION)

NEWARK ESSEX CO. N. J.

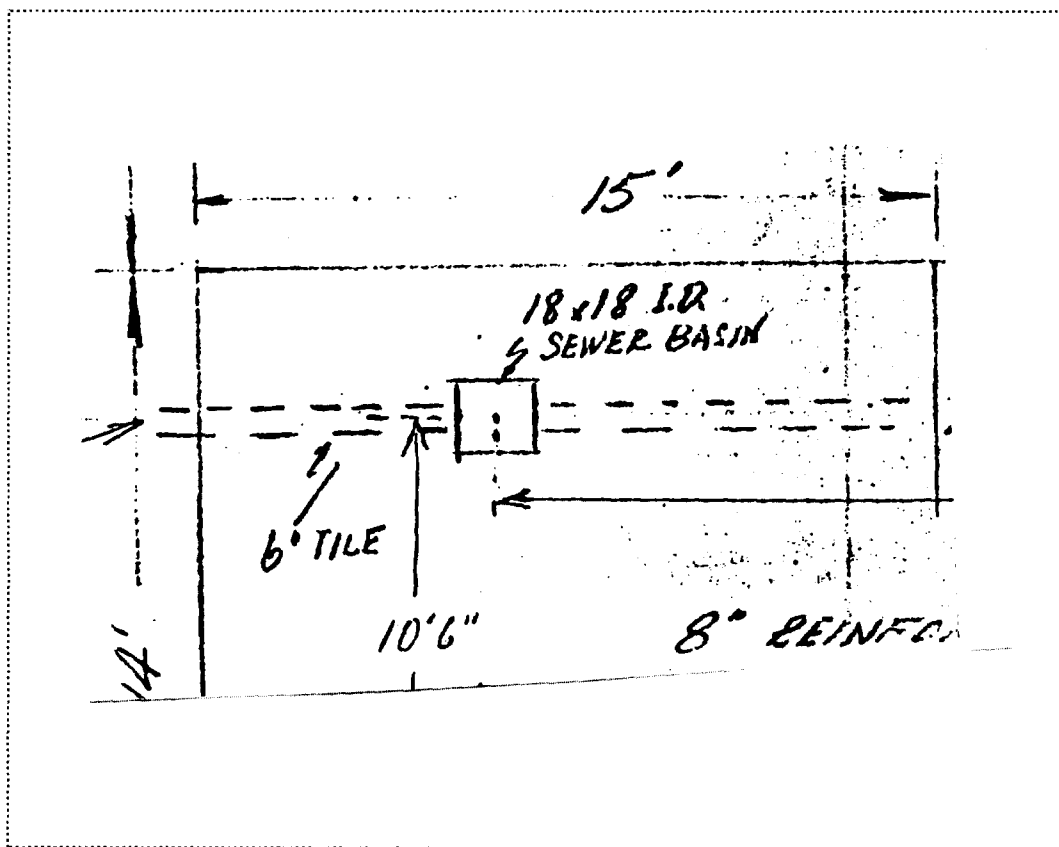
V. F. BURINICK

SCALE 1" = 50'

Nov. 29, 1956


845470021

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007




845470022

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

DATE:	PROJECT NO. 845470023	SCALE: AS SHOWN
DES BY: KPS/JLP 10/04/91	PROJECT:	CWM OF NEW JERSEY, INC.
DRAWN BY:		REMEDIAL INVESTIGATION
CHECK BY:	SHEET TITLE:	
REV BY:	SOIL & GROUNDWATER	
APP BY:	SAMPLING LOCATIONS	
	CWM Chemical Waste Management of New Jersey, Inc.	SHEET _____ OF _____
		DRAWING NO. _____
		FIGURE 5


845470023

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

DATE:			PROJECT NO. 835/7000	SCALE: AS SHOWN
DES BY:	KPF	10/15/93	PROJECT: CMW OF NEW JERSEY, INC. REMEDIAL INVESTIGATION	
ORA BY:			SHEET TITLE: SOIL SAMPLE TOTAL VOLATILE ORGANIC COMPOUND CONCENTRATIONS	
CHK BY:			SHEET: 1 OF 1	
REV BY:			DRAWING NO.	
APP BY:			FIGURE 12	
 CWM Chemical Waste Management of New Jersey, Inc.				


845470024

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

DATE		PROJECT	
DESIGN BY	DATE	CWM OF NEW JERSEY, INC. REMEDIAL INVESTIGATION	
DRN BY	DATE	SHEET TITLE	
CHK BY	DATE	SOIL SAMPLE	
REV BY	DATE	TOTAL SEMI-VOLATILE ORGANIC COMPOUND CONCENTRATIONS	
APP BY	DATE	SHEET NO. 13 OF 13	
 CWM Chemical Waste Management of New Jersey, Inc.		DRAWING NO.	
		FIGURE 13	

845470025

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

REV	DATE	DESCRIPTION	DRAWN BY	APP BY
DATE	PROJECT NO. BJB77 030	SCALE	AS SHOWN	
DES BY	KPE/JTP	10/24/93	PROJECT: CWM OF NEW JERSEY, INC. REMEDIAL INVESTIGATION	
DRAWN BY			SHEET TITLE: SOIL SAMPLE TOTAL PESTICIDE CONCENTRATIONS	
CHK BY				
REV BY				
APP BY				
 CWM Chemical Waste Management of New Jersey, Inc.			SHEET 1 OF 1 DRAWING NO. 14 FIGURE 14	

845470026

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007




CWM of New Jersey, Inc.
Newark facility

DRAWING TITLE.

FIGURE 2
SECONDARY CONTAINMENTS
STORMWATER DRAINS
& SUBSURFACE TRENCHES


845470027

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CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

REV.	DATE	DESCRIPTION	DRN BY	APP BY
DATE:		PROJECT NO. 83877.000	SCALE: AS SHOWN	
DES BY	KPF/JTP	10/04/93	PROJECT: CWM OF NEW JERSEY, INC. REMEDIAL INVESTIGATION	
DRN BY			SHEET TITLE:	
CHK BY			FACILITY PLAN	
REV BY				
APP BY				
 CWM Chemical Waste Management of New Jersey, Inc.			SHEET _____ OF _____	
			DRAWING NO.	
			FIGURE 2	

845470028

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

REV.	DATE	DESCRIPTION		DRN BY	APP BY
DATE:		PROJECT NO. 83877.000		SCALE: AS SHOWN	
DES BY	KPF/JTP	10/04/93	PROJECT: CWM OF NEW JERSEY, INC. REMEDIAL INVESTIGATION		
DRN BY			SHEET TITLE: HISTORICAL SAMPLING LOCATIONS		
CHK BY					
REV BY					
APP BY					
 CWM Chemical Waste Management of New Jersey, Inc.			SHEET _____ OF _____		
			DRAWING NO. _____		
			FIGURE 3		

845470029

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

DEPARTMENT OF PUBLIC AFFAIRS
NEWARK, N. J.
BUREAU OF STREETS
PLAN OF
SUBSURFACE STRUCTURES
LISTER AVENUE
FROM CATHERINE ST. TO CHAPEL ST.
MADE *G.M.D.* CHECKED *G.M.S.* NTIL CHECKED *NTIL*
1 INCH = 50' SEPTEMBER 24 1957
PREPARED *S. O. [Signature]* ASSISTANT ENGINEER
APPROVED *[Signature]* ENGINEER IN CHARGE
ACCEPTED *[Signature]* CHIEF ENGINEER DEPT. OF PUBLIC AFFAIRS

845470030

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

DEPARTMENT OF PUBLIC AFFAIRS NEWARK, N. J. BUREAU OF STREETS PLAN OF SUBSURFACE STRUCTURES BROWN STREET	
FROM LISTER AVE. to PASSAIC RIVER	
MADE C.M.D.	CHECKED L.A.L. UTIL. CHECKED P.R.
1 INCH = 20'	SEPTEMBER 15 1937
PREPARED <i>James S. [Signature]</i>	ASSISTANT ENGINEER
APPROVED <i>Geo. J. [Signature]</i>	ENGINEER IN CHARGE
ACCEPTED <i>James S. [Signature]</i>	CHIEF ENG. DEPT. OF PUBLIC AFFAIRS

845470031

THIS MAP CAN BE FOUND IN THE SITE FILE LOCATED AT: U.S. EPA SUPERFUND RECORDS
CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007

DEPARTMENT OF PUBLIC AFFAIRS			
NEWARK, N. J.			
BUREAU OF STREETS			
PLAN OF			
SUBSURFACE STRUCTURES			
LISTER AVENUE			
from 412.31' E OF LOCKWOOD ST. to CATHERINE ST.			
MADE	C.M.D.	CHECKED	G.H.S.
UTIL.	CHECKED	F.F.F.	
1 INCH = 20'	SEPTEMBER 24 1937		
PREPARED	Assistant Engineer		
APPROVED	Engineer in Charge		
ACCEPTED	Chief Engr. DEPT. OF PUBLIC AFFAIRS		

845470032

EARTHLINE COMPANY

100 Lister Ave., Newark, N.J.

Phone Number - (201) 465-1650

Contact: Mr. Robert A. Fletcher, Vice President and General Manager

EXHIBIT C

Number of Employees: Approximately 60

Number of Working Days Per Week: 5

Number of Shifts Per Day: 1 - 3

Area of Property: 3 Acres

Type of Industry and 4 Digit U.S. Standard Industrial Classification No.: SIC # 4990

Finished Product(s): Fuel and Inorganic Acid

Average Production: 50,000 to 200,000 GPD

Raw Materials Used: Chemical and Petro-Chemical By-Products

Brief Description of Operations: Operation consists of distillation, filtration, oxidation-reduction, detoxification, centrifugation to remove and reclaim marketable products. The resultant water is pre-treated to reduce all deleterious material prior to sewer discharge.

845470006

PROPOSED DISCHARGE WATER QUALITY AND ANALYSIS

- a) pH: 6.5 - 8.5 b) Turbidity: 500-800 JTU
- c) Temperature: Less than 160°F.
- d) Solids Concentration:
1. Total Solids - 10,000 - 20,000
 Volatile - 3,000 - 10,000
 Mineral - 7,000 - 10,000
 2. Suspended Solids - 5,000 - 15,000
 Volatile - 4,000 - 12,000
 Mineral - 1,000 - 3,000
- e) Oil and Grease Concentration:
 Floatable Oils and Emulsified Oils - Less than 100 PPM
- f) Chlorides: 50,000 - 60,000 PPM
- g) Chemical Oxygen Demand (C.O.D.): 3,000 - 8,000
- h) 5-Day Bio-Chemical Oxygen Demand (B.O.D.): 500 - 1,000
- i) Total Organic Carbon (T.O.C.): 3,000 - 8,000
- j) Metallic Ions: Name and Concentration
- | | |
|-------|----------------|
| cu | 0.5 - 1.0 PPM |
| Ni | 0.5 - 1.0 PPM |
| cd | 0.1 - 1.0 PPM |
| cr +3 | 0.1 - 1.0 PPM |
| cr +6 | 0.01 - 0.1 PPM |
| co | 0.01 - 0.5 PPM |
| Pb | 0.01 - 0.1 PPM |
| Fe | 2 - 5 PPM |
| Zn | 0.1 - 1.0 PPM |
| HG | 0.1 - .05 PPM |
| SB | .1 - .5 PPM |
| V | Not detectable |
- k) Toxic Material - Name and concentration e.g., cyanide salts, etc.)
- | | |
|---------|---------------|
| Cynide | 0.1 - 1.0 PPM |
| Sulfide | 0.1 - 1.0 PPM |
- l) Solvents - Name and Concentration
- | | |
|---------|---------|
| Alcohol | 200 PPM |
| Acetone | 10 PPM |
- m) Salts - Name and concentration
- | | |
|-----------|-----------------|
| Chlorides | 50,000 - 60,000 |
| Sulfates | 5,000 - 20,000 |
- n) Resins - Name and concentration - Trace
- o) Peak rate of discharge would be continuous 24 hours per day, 5 days per week at 1,000,000 gal./day maximum.

845470007

Rec'd via purulator on 10/21/83, 10⁰⁰ A.M.

SCA CHEMICAL SERVICES, INC.
AN SCA SERVICES CO.

5 Middlesex Avenue
Somerville, Massachusetts 02145
(617) 367-8300 Telex 94-0473

Dewling
Schaper
Handley/Struck
Schultz
John W.



October 20, 1983

Mr. Richard T. Dewling
Acting Regional Administrator
US EPA Region II
26 Federal Plaza
New York, NY 10007

Dear Mr. Dewling:

This letter is in response to allegations by Mr. Brady of Brady Iron and Metal, Inc. that SCA equipment could have been responsible or partly responsible for contamination of Mr. Brady's 55 Lockwood Street site. As per our telephone conversation of October 20, 1983, SCA had undertaken a comprehensive sampling of the Newark Earthline Facility site during the period from 6/3/83 to the present. Based on our sampling at the site and on our inspections of equipment prior to removal from the site, it is SCA's contention that the Earthline Facility could not possibly be the source of or have made a significant contribution to the the contamination at the Brady Iron & Metal site.

Using a sampling plan approved by Michael Catania, Director, NJDEP Department of Regulatory Services, SCA and NJDEP site inspectors have collected more than thirty (30) samples from the site. In order to get complete coverage the site was divided into a gridwork of sixteen (16) zones with a minimum of one (1) sample collected from each zone (Figure 1). ETC Corporation of Edison, New Jersey performed all analyses and reported results directly to Mr. Catania and Dr. Berkowitz of the NJDEP.

Analytic results from ETC laboratories demonstrate conclusively that there is no evidence of gross contamination on the SCA-leased property at 100 Lister Ave. Dioxin contamination above 1 ppb was found in some settled dust samples. However, this contamination is not associated with sources on the SCA property but rather from wind dispersion and traffic from from the known hot spots of contamination on Merisol property. SCA vehicles which were garaged on Merisol property and traversed Merisol and Sargeant property were also contaminated because of their association with the Merisol property.

The SCA site soil, sweep, and gravel samples show little or no dioxin contamination. In fact all soil samples (sample numbers 3, 4, 5, 6, 7, 8, and 9) and soil core samples (sample numbers 29, and 30) have shown no detectable dioxin. This fact is particularly relevant in that the grid zones A3, A4, B3, B4 and C3 are the site of a former Montrose Chemical process building (#5A). This structure, which was demolished by SCA when SCA first leased the property, housed several Montrose reactors and tanks. Several vessels were removed from service


845440001

by SCA, some of which were put into storage while others went to salvage. These vessels were inspected and found free of chemical residues by SCA and SCA Contractors on two occasions, first at the time of acquisition of the facility lease and second immediately prior to removal from the site.

We believe that based on the evidence of our visual examinations and the extensive sampling of the site by the NJDEP that the dioxin contamination at the Brady site has originated from sources other than SCA equipment or property..

SCA remains willing to cooperate to the fullest extent with you in the investigation of this matter.

Sincerely,



Richard B. Mahoney
Manager, Environmental Permitting

RM:sa
Enclosures

cc: R. Fletcher

DATA
MANAGEMENT
REPORT

FOR

SCA SERVICES, INC.
NEWARK FACILITY

DIOXIN PROJECT

September, 1983

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SCA#	ETC#	DATE SAMPLED	GRID ZONE	SAMPLE TYPE	RESULTS
2	C4241	6-3	A-2	AC COMPRESSOR	3.5 ppb
3	C4238	6-3	A-3	GRAVEL SCOOP	ND
4	C4237	6-3	B-3	GRAVEL SCOOP	ND
5	C4242	6-3	B-3	GRAVEL SCOOP	ND
6	C4243	6-3	B-3	GRAVEL SCOOP	ND
7	C4244	6-3	B-3	GRAVEL SCOOP	ND
8	C4245	6-3	B-3	GRAVEL SCOOP	ND
9	C4246	6-3	B-3	GRAVEL SCOOP	ND
10	C4240	6-3	North of A-2 Sargent Prop	GRAVEL SCOOP	4.1 ppb
11	C4239	6-3	North of A-1 Sargent Prop	GRAVEL SCOOP	3.8 ppb
12	C4492	6-9	A-2	DUST AC EVAPORATORS; SCOOP	15 ppb
13	C4493	6-9	A-2	RUG FIBERS	ND
14	C4572	6-10	A-2	VACUUM BAG DUST	3.4 ppb
15	C7838	7-26	A-1	SWEEP DUST	ND
16	C7833	7-26	B-1	SWEEP DUST	ND
17	C7839	7-26	B-2	SWEEP DIRT	0.33 ppb
18	C7832	7-26	B-4	SWEEP DUST	ND
19	C7831	7-26	C-1	SWEEP DUST	0.44
20	C7841	7-26	C-2	SCRAPE CRACK RR TRACKS	0.37 ppb
21	C7840	7-26	C-3	SWEEP DUST	ND
22	C7830	7-26	C-4	SCRAPE FROM CRACK	1.6 ppb
23	C7842	7-26	D-1	SCRAPE FROM RR TRACKS	ND
24	C7837	7-26	D-2	SWEEP DUST	ND
25	C7843	7-26	D-3	SWEEP DUST	0.23 ppb
26	C7836	7-26	D-4	SWEEP DUST	ND
27	C7657	7-21	A-2	AC SWIPE DUCT	1.3 ng
28	C7658	7-21	A-2	DUST BUSTER CARPET	0.77 ppb
29	C7844	7-26	A-3	CORE SAMPLE	ND
30	C7835	7-26	B-3	CORE SAMPLE	ND

S/RM1

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**DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples**

September 16, 1983
Page 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below

SCA CHEMICAL SERVICES

NEWARK

See Below

ETC Sample No.

Company

Facility

Sample Point

Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	SAMPLE I 830331 C0829	SAMPLE II 830331 C0854						
PP Base/Neutral Compounds									
2,3,7,8-TCDD	ug/kg	ND	ND						

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DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below

Sample Point	Date
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		Sample Points, Sampling Dates, and ETC Sample No.'s							
Parameters	Units	S 4C 830602 C4190	S 6A 830602 C4191	S 7A 830602 C4192	S 8A 830602 C4193				
PP Base/Neutral Compounds									
2,3,7,8-TCDD	ug/kg	4.2	0.43	0.36	0.93				

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845440006

**DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples**

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below
Sample Point Date

		Sample Points, Sampling Dates, and ETC Sample No.'s							
Parameters	Units	2 830603 C4241	3 830603 C4238	4 830603 C4237	4D 830603 C4249	5 830603 C4242	7 830603 C4244	8 830603 C4245	9 830603 C4246
P Base/Neutral Compounds									
3,7,8-TCDD	ug/kg	3.5	ND	ND	ND	ND	ND	ND	ND

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DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below
Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	10 830603 C4240	10 830603 C4479	11 830603 C4239	#27MB 830603 C4247	495G-0080N 830603 C4248	12 830609 C4492	13 830609 C4493	14 830610 C4572
P Base/Neutral Compounds									
3,7,8-TCDD	ug/kg	*	4.1	3.8	ND	1.1	15	ND	3.4

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**DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples**

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below
Sample Point Date

		Sample Points, Sampling Dates, and ETC Sample No's						
Parameters	Units	X XKA-71J 830705 C6575	X XKA-71J 830705 C7545	X XSP-56C 830705 C6573	X XSP-92D 830705 C6576	X XSP-92D 830705 C7546	X XXZ-42C 830705 C6574	X XXZ-42C 830705 C7544
Base/Neutral Compounds								
3,7,8-TCDD	ug/kg	*	*	12	*	*	*	*

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DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below

Sample Point	Date
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Parameters		Sample Points, Sampling Dates, and ETC Sample No.'s						
		YUL-49Y 830705 C6572	YUL-49Y 830705 C7543					
	Units							
P Base/Neutral Compounds								
3,7,8-TCDD	ug/kg	*	*					

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**DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples**

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below
Sample Point Date

		Sample Points, Sampling Dates, and ETC Sample No's							
Parameters	Units	X AIR DUCT 830721 C7657	X RUG 830721 C7658	2 TANKER 830722 C7772	X PICKUP 830722 C7774	SHORT VAN 830722 C7775	VAC TK 77 830722 C7771	VAC TK 82 830722 C7773	VAC TK 82 830722 C8469
PP Base/Neutral Compounds									
2,3,7,8-TCDD	ug/kg	1.3	0.77	ND	25	17	8.5	ND	*

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845440011

**DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples**

September 29, 1983

Chain of Custody Data Required for ETC Data Management Summary Report

See Below
ETC Sample No.

SCA CHEMICAL SERVICES
Company

NEWARK
Facility

See Below
Sample Point Date

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	S SCA 15 830726 C7838	S SCA 16 830726 C7833	S SCA 16 830726 C9781	S SCA 17 830726 C7839	S SCA 18 830726 C7832	S SCA 19 830726 C7831	S SCA 20 830726 C7841	
PP Base/Neutral Compounds									
2,3,7,8-TCDD	ug/kg	ND	*	6.6	0.33	ND	0.44	0.37	

**DATA MANAGEMENT SUMMARY REPORT
(DM-1C) - All Parameters Present, Selected Samples**

September 29, 198.

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	SCA CHEMICAL SERVICES	NEWARK	See Below
ETC Sample No.	Company	Facility	Sample Point Date

		Sample Points, Sampling Dates, and ETC Sample No.'s							
		S SCA 21 830726 C7840	S SCA 21 830726 C9991	S SCA 22 830726 C7830	S SCA 23 830726 C7842	S SCA 23 830726 C9992	S SCA 24 830726 C7837	S SCA 25 830726 C7843	S SCA 26 830726 C7836
Parameters	Units								
PP Base/Neutral Compounds									
2,3,7,8-TCDD	ug/kg	*	ND	1.6	*	ND	ND	0.23	ND

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845440013

DATA MANAGEMENT SUMMARY REPORT

September 29, 1998

Chain of Custody Data Required for ETC Data Management Summary Report

See Below

SCA CHEMICAL SERVICES

Company

NEWARK

Facility

See Below

Sample Point	Date
1	10/10/1964
2	10/10/1964
3	10/10/1964
4	10/10/1964
5	10/10/1964
6	10/10/1964
7	10/10/1964
8	10/10/1964
9	10/10/1964
10	10/10/1964
11	10/10/1964
12	10/10/1964
13	10/10/1964
14	10/10/1964
15	10/10/1964
16	10/10/1964
17	10/10/1964
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32	10/10/1964
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89	10/10/1964
90	10/10/1964
91	10/10/1964
92	10/10/1964
93	10/10/1964
94	10/10/1964
95	10/10/1964
96	10/10/1964
97	10/10/1964
98	10/10/1964
99	10/10/1964
100	10/10/1964

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters

Units

S SCA 29C
830726
C7844

S SCA 30C
830726
C7835

PP Base/Neutral Compounds

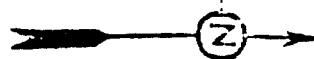
2,3,7,8-TCDD

ug/kg

ND

ND

845440014



Column



x = sample collected

(ALL RESULTS EXPRESSED IN ug/kg)